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Guiding Growth: A Growth Management Plan for Powhatan County

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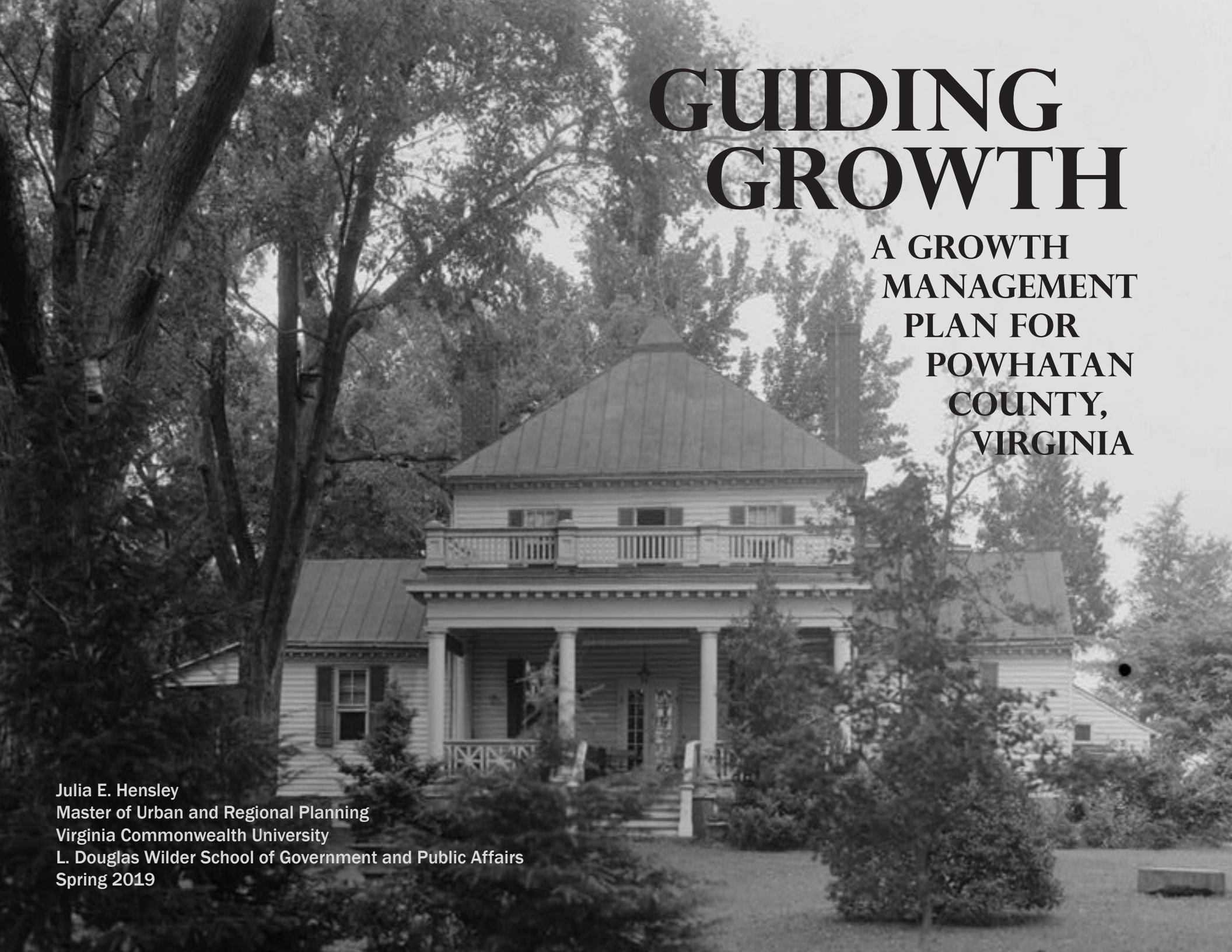

GUIDING GROWTH

A GROWTH MANAGEMENT PLAN FOR POWHATAN COUNTY, VIRGINIA

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PLAN OUTLINE

The growth management plan for Powhatan is divided into the following sections:

Part I:

Section 1: Introduction
Section 2: Prior Research and Literature
Section 3: Existing Conditions

Part II:

Section 4: Analysis and Research Findings

Part III:

Section 5: Recommendations
Section 6: Implementation

PART I

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SECTION I
INTRODUCTION

PLAN PURPOSE

This plan originated as an attempt to help visualize patterns of residential development in an effort to help Powhatan County determine if current land use policies are leading to patterns of development congruent with the county's long-term plans. As it currently stands, Powhatan County's ordinances regarding development (for example, the subdivision and zoning ordinances) do not guide the location of growth, but rather address requirements such as administrative review and required design elements. The zoning ordinance in place guides residential development and specifies density limitations and minimum lot sizes.

Despite having the subdivision and zoning ordinances as guides, Powhatan County has experienced a lot of geographically random development that does not align with the vision set forth in the county's long-range comprehensive plan. Within the county's plan document, there are numerous Special Areas that are highlighted: the Courthouse Village, Route 60 Corridor East, and 711 Village. In order to fine-tune growth management interventions, the county would benefit from having a document that illustrates how the county would develop if no further action is taken, and how that could be prevented with additional growth management tools.

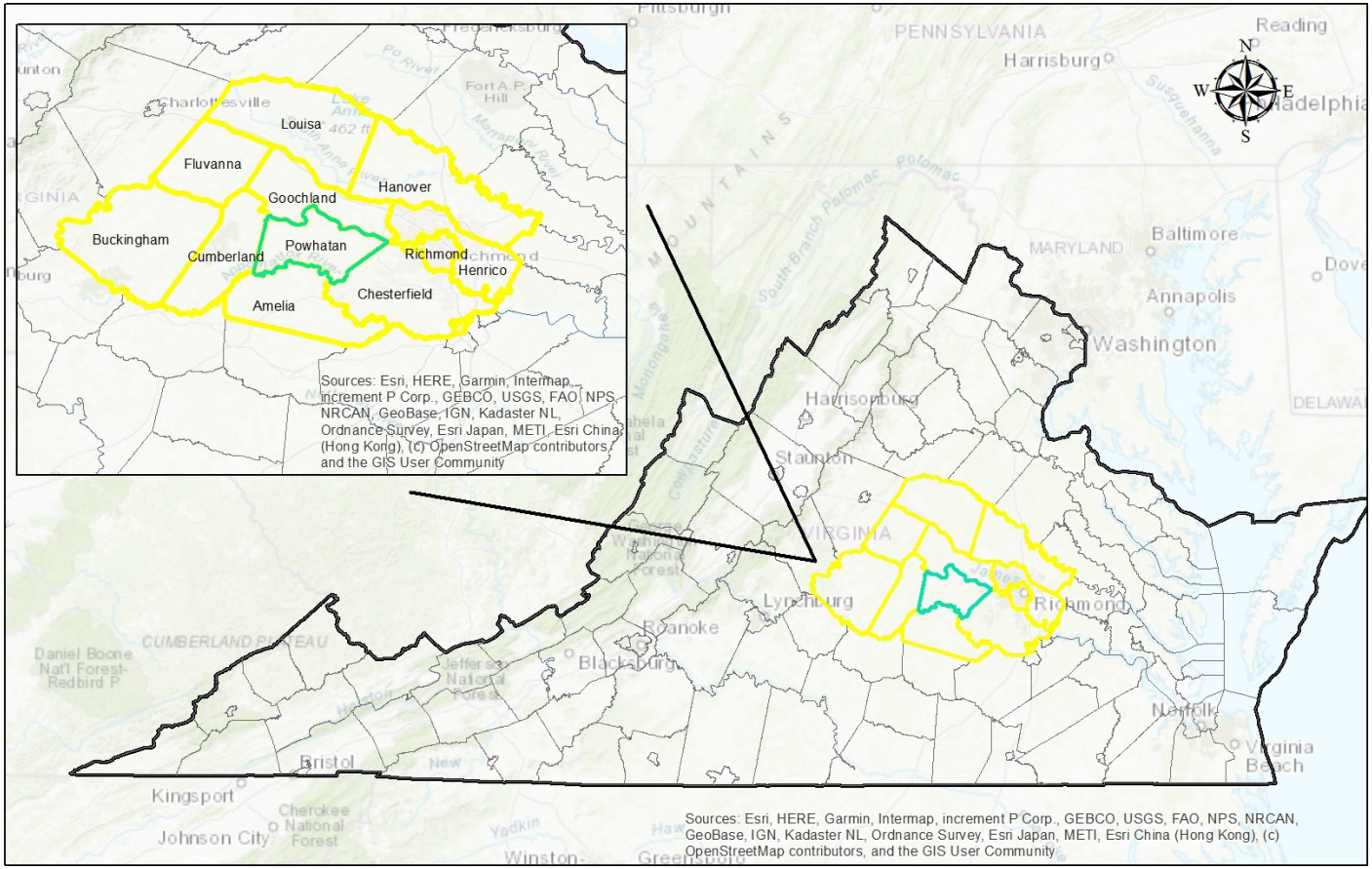
The planning department in Powhatan is working with the Planning Commission and Board of Supervisors to update the comprehensive plan, which was last updated in 2010. As it stands, there is no document available to help the planning department illustrate the potential future patterns of residential development to the Board of Supervisors. The county is also looking for a document that comprehensively and historically maps residential development in Powhatan. Because of this, the planning department needs an illustrative way to demonstrate the potential impacts of the historical and more recent development patterns in the county should they continue into the future.

The purpose of this plan is to analyze data and develop scenarios of how future residential development will affect land use, and to also propose growth management implementation tools for the preservation and protection of Powhatan's rural character. These recommendations will outline steps to take to ensure land preservation while also meeting future housing needs. With the comprehensive plan outlining where development should occur, this document will also serve as a visual tool to help explain potential effects on the rural character of the county should growth management tools remain unchanged. Having this document provides the Planning Commission and Board of Supervisors with the data needed to make informed decisions regarding appropriate growth management policies.

THE CLIENT
GEOGRAPHY

Powhatan County is located west of the City of Richmond in central Virginia, separated by Chesterfield County (Figure 1). It is bordered by Amelia County to the south, Goochland County to the north, Chesterfield County to the east, and Cumberland County to the west (Figure 1). The county sits on 272 square miles, or approximately 174,080 acres (Powhatan, 2010 Comprehensive Plan, 3). The county is predominantly rural, with most of the new residential development occurring in large-lot subdivisions throughout the entire county (Powhatan, 2010 Comprehensive Plan, 3). The denser residential development has occurred in Scottville near the Courthouse Village, and east of Route 288 in Founder's Bridge.

FIGURE 1: *Inset map of Central Virginia*



SOURCE: *US Census 2017 TIGER/Line shapefiles (US Counties)*

ECONOMY

The county was originally settled in the 1700's by French Huguenots, and was officially established by the Virginia General Assembly in 1777 (Powhatan, 2010 Comprehensive Plan, 3). The county's economy has historically revolved around farming, specifically silviculture/timbering, crop cultivation, and livestock. Originally, nearby waterways (specifically the James and Appomattox Rivers) were used to transport goods. After the construction of railways and highways, the economy became dependent on these modes of transport. Although agriculture was a large part of the county's economy in the past, government employment has taken over as the largest contributor to the current economy (Powhatan, 2010 Comprehensive Plan, 3).

PLANNING IN POWHATAN

The Powhatan County planning team is a division of the Community Development Department, and includes a small number of planning professionals. In 2017, the county adopted a strategic plan (VISION 2030 and Three-Year Priorities) that details specific priorities over the next three years and beyond. Within the strategic plan, the county notes its policy focuses to better target these priorities. These goals include protecting the rural character of the county by being stewards of the land; maintaining a strong economy; promoting public safety and welfare; enabling access to high quality education; maintaining fiscal transparency in government; providing a diversity of community amenities such as housing, parks, and recreation; and collaborating with local and regional partners to promote partnerships and a greater sense of community. Each of these different focuses in the strategic plan lists concrete steps to take to help achieve these priorities. A recent countywide survey took into account a variety of these issues. The survey noted that open space preservation is an important issue to residents.

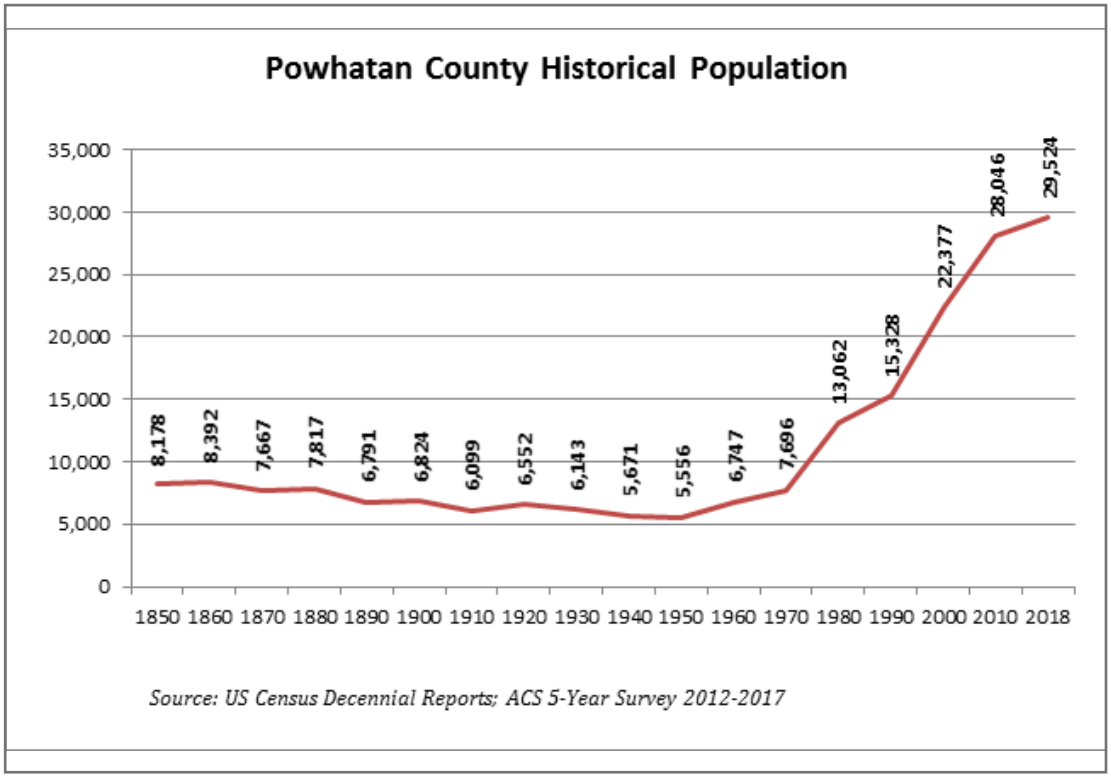
There are multiple areas within the county in the 2010 comprehensive plan that are targeted for small area plans. These include the eastern Route 711 corridor, the eastern Route 60 corridor, and the Courthouse Village. There are opportunities to develop various housing types within these small area plans, and a large amount of residential properties are located around these corridor areas. This plan investigates these areas, but did not limit analysis to just these areas.

Although it is geographically close to the City of Richmond, Powhatan has maintained its rural character despite heavier growth in neighboring counties, including Chesterfield to the east and Goochland to the north. However, recent decades of growth have illustrated a need for guided growth as land that is still open is scarce. As mentioned previously, the recent countywide survey showed that residents wish to retain the rural character of the county, and past efforts to pass an ordinance to help guide residential development with this intent have not been approved.

TABLE 1: Historic Population Figures in Powhatan (1850 - 2018)

CENSUS YEAR	POWHATAN, VA POPULATION
1850	8,178
1860	8,392
1870	7,667
1880	7,817
1890	6,791
1900	6,824
1910	6,099
1920	6,552
1930	6,143
1940	5,671
1950	5,556
1960	6,747
1970	7,696
1980	13,062
1990	15,328
2000	22,377
2010	28,046
2018*	29,524

FIGURE 2: Historical Population Chart, 1850 - 2018



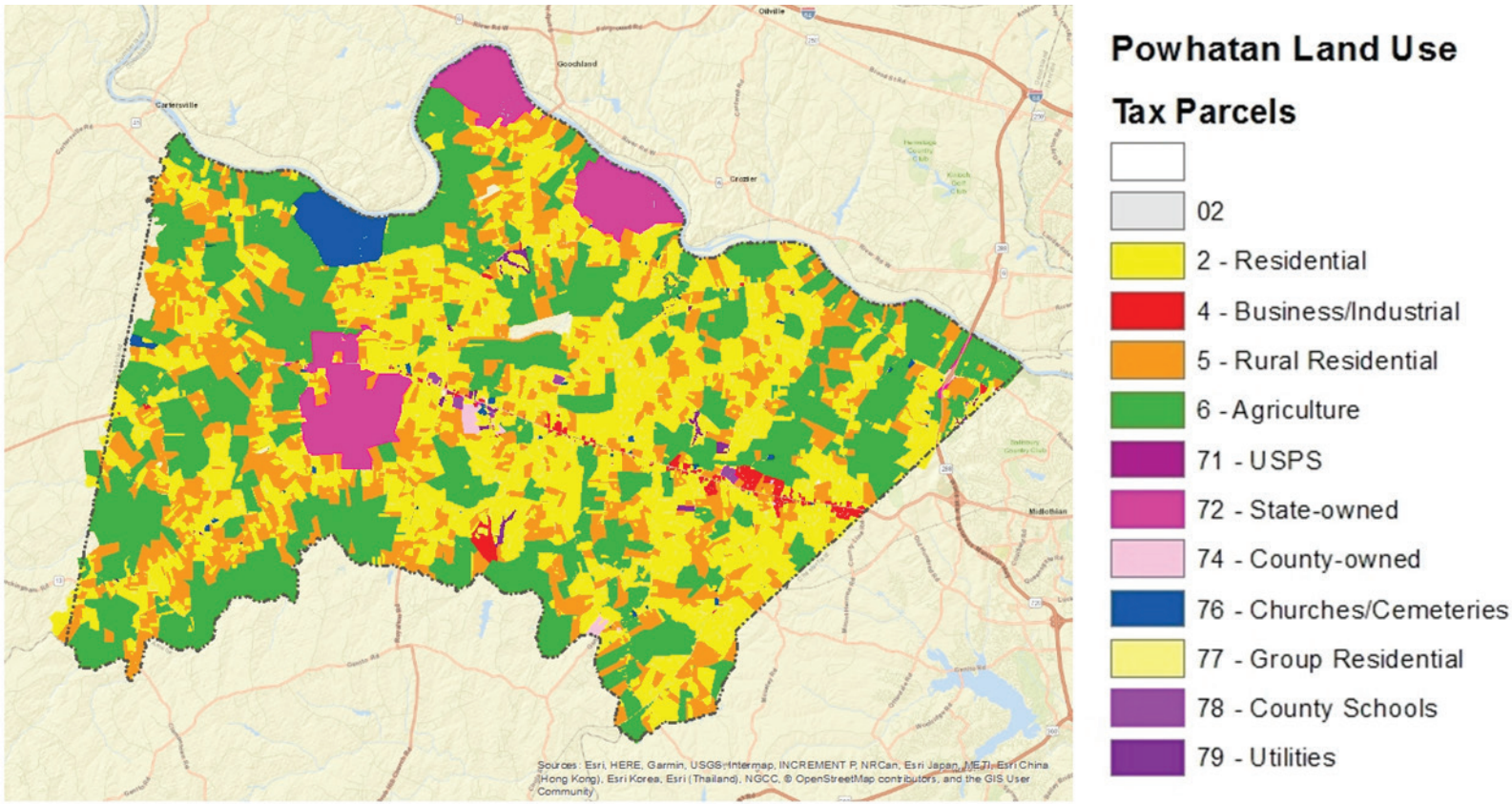
BACKGROUND AND RECENT HISTORY

Population data from the US Census provided an interesting look at growth within the county. According to the decennial census data, population in the county actually depleted in the years prior to World War II (Table 1). Steady increases, although slow, continued in the county until the latter part of the 20th century, when rates began to increase at much higher rates (Powhatan 2010 Comprehensive Plan, 3).

Table 1 and Figure 2 illustrate this general trend. It is interesting to note that in 1970 the total county population was 7,696, and had almost doubled to 13,062 by the 1980 Census. By 2010, the Census reported that the county's population was up to 28,046, which is almost double what the Census reported in 1990 (15,328), or over a 20-year span.

Development trends in the county over the past few decades seem to be favoring larger-lot single-family residential development (in 5-acre or more lots) over other types of single-family development and multifamily development. Sections following will illustrate development and lot size trends more closely. As shown in Figure 3, much of the residential development is scattered throughout the county. Because land is scarce, discussion on how and why large-scale development occurs is necessary in communities that wish to maintain their rural atmosphere. Throughout the nation, there has been a surge of activism in recent decades on the part of residents who want to be a vocal presence in the future of their communities. Specifically, sometimes conflict arises between what an individual or resident wants for his or herself and what he or she thinks is best for the community. In Powhatan's case, the recent countywide survey showed that a predominant concern of residents is the preservation of open space. However, when 5- to 10-acre lot subdivisions occur sporadically throughout the county, it takes up a large portion of the rural land cover and thus has the opposite effect on open space. To combat this, localities must act accordingly and come up with solutions that compromise both the land preservation issue and the issue of housing demand.

FIGURE 3: Current Land Use



GUIDING PRINCIPLES AND THEORY

RELEVANT THEORIES WITHIN PLANNING

There are numerous theories in planning that will be useful to understand when developing an appropriate approach to this type of plan. They include but are not limited to spatial analysis, growth management, sprawl, leapfrog development, transportation, rural preservation, suburban densification, smart growth, land use, and conservation. An analysis of prior research and literature on these terms is provided in more detail in the next section. The emphasis when researching previous literature and existing plans was on smart growth/growth management policies and the resulting impact on rural preservation, primarily because it applies to Powhatan's concerns about residential development interfering with rural preservation land. Both "smart growth" and "growth management" are significant terms that will be used frequently throughout this plan document. Smart growth and growth management are linked together in the American Planning Association's Planner's Dictionary (208), where both definitions indicate a policy focus on guiding or channeling growth based on the needs of a particular community or locality.

As mentioned earlier, it is critical for rural localities like Powhatan to meet the housing demands of a growing population while simultaneously preserving the rural character of the county. Because these needs are somewhat in conflict with each other, it creates a dilemma for planners and residents alike. Ultimately, this results in a need for careful analysis and judgments about where, when, and how development occurs.

THEORIES OF PLANNING

A crucial element of this plan and its implementation will be its guiding principles and the theories behind growth management as a best practice. The overarching theme among most growth management policies is sustainability, and more specifically sustainable development. In most definitions, sustainable development is characterized by development that meets the various needs of the current population while simultaneously not endangering future generations' ability to meet their needs (APA Dictionary, 403; Brundtland Report). The theory of sustainable development provides the framework for which this plan was built upon. At its core, sustainable development is characterized by development that does not strain natural resources. Therefore, this framework allows the focus of this research to be on issues such as scarcity of land and impacts of development on rural preservation land. This in turn has allowed the analytical section to focus on the measurable impacts of sustainable development and growth management policies in Powhatan.

APPROACH AND METHODS

The plan proposed for Powhatan presents scenarios that would be favorable to residents and local interests. It takes multiple scenarios of future land consumption based on recent population patterns in the county and presents them as examples of future land use throughout the county. These analytical maps depict the impact on open space depending on both the type of residential development and size of residential lots. The discussion about the maps will present an analysis of each potential land consumption scenario.

This type of plan required a breakdown into three separate categories of analysis: past residential development trends, current trends, and potential future scenarios based on various policy initiatives. Section 3 details historical development trends, and Section 4 focuses on current trends and potential future land consumption scenarios.

Ultimately, a number of sources and documents were used to gather base information about the subdivision development process within Powhatan, including internet resources and county staff. The most recent county comprehensive plan (2010) was used to acquire information about development trends and to gather other basic information about the county's structure. Ordinances and the county code were also inspected for information regarding development. In addition to these documents, data from the Census and from American FactFinder was used. A tax parcel shapefile from Powhatan included details about current land use for each parcel within the county. This shapefile was used to analyze past and more recent development trends, as well as lot size trends and other acreage calculations. The data provided was projected from the <NAD_1983_HARN_StatePlane_Virginia_ South_FIPS_4502_Feet> coordinate system into the <NAD_1983_StatePlane_Virginia_South_FIPS_ 4502_Feet> coordinate system.

To break down the analysis and synthetization of all the data properly and to present the findings adequately, this research addresses the following critical question:

What are some potential countywide scenarios of future housing supply (%) when new residential lots are varying sizes?

This question is vital because building 10 homes that are each on 10-acre lots consumes a much larger chunk of land than 10 homes on 1-acre lots (100 acres versus 10 acres). This question sets up the series of analytical maps that will depict each scenario, which are provided in more detail in the Analysis section. It also provided a base for a series of math analyses done to determine the approximate number of new homes that will be built in 5, 15, and 25 years. In these calculations, the author gathered the annual number of residential lots developed, along with the number of residential acres developed, for the past 20 years. Then, the average number of residential lots developed, along with the average number of residential acres developed, were calculated and presented in a table. This gave the authore an estimated annual growth figure both for number of lots and

number of residential acres developed. After this figure was obtained, the author was able to project the future number of acres developed should existing conditions remain the same.

The author's process of analyzing current and future development within the county revolved around GIS data provided by the county. Each acreage calculation performed in this document uses the field [Acres_NAD] that was calculated using GIS the geometric measurements of the tax parcels provided by the county. The reason for creating a new field was that 1,397 out of the 15,218 total parcels were missing measurements in the MACRES_ field that was in the original data. This amount of missing data (9.1%) would greatly skew the analysis. When attempting to calculate acreage for those 1,397 parcels missing the data, it became clear that the acreage field in the original data [MACRES_] did not equal the acreage calculations performed in ArcMap. Therefore, the figures from tables and charts in this document represent the acreage calculations performed in the [NAD_1983_StatePlane_Virginia_South_FIPS_4502_Feet] projected coordinate system.

To analyze development, land use classifications provided by Powhatan were cross-referenced with other fields within the tax parcel data, such as year built, improvement value, maximum occupancy, and number of bedrooms, as well as satellite imagery. For parcels that were more difficult to identify, specific map PINs entered into the county's online GIS software provided the most recent details and assessments along with an overlay map.

Other questions that arose in the research process helped to establish an existing conditions report on historical population, housing development patterns, and current administrative and regulatory processes in the county. These can be located in Section 3.

SECTION II
PRIOR RESEARCH & LITERATURE

For many decades, there have been attempts made by local, state, and regional government bodies to guide development and influence where growth occurs. Collectively, these policy focuses have been termed growth management, or Smart Growth, practices. The American Planning Association (APA) defines growth management as, "(t)he use by a community of a wide range of techniques in combination to determine the amount, type, and rate of development desired by the community and to channel that growth into designated areas" (208).

GROWTH MANAGEMENT AND RURAL PRESERVATION

There is a large amount of research that focuses on growth management and rural preservation. One study from 2003 (Bell et al.) mapped the residential patterns in Calvert County, Maryland to determine multiple potential outcomes of development as it (at the time of publication) was a rural-urban fringe county. This paper specifically dealt with tracking residential patterns using GIS, which is one of the primary focuses of the plan for Powhatan County. Within the paper, there were places for me to use as a jumping off point in the analysis, such as the use of spatially disaggregated data, duration models, and parameter estimates. One issue the paper brings up is that few communities have the resources to be able to analyze historical land use patterns in an effort to establish growth management practices (84). Bearing in mind that the publication date of this paper was in 2003, many rural localities still do not have the resources to be able to generate these types of analyses to help influence growth management policies and practices. As is the case with Powhatan, the importance of highlighting past and current development patterns to help explain and mold potential future patterns is substantial.

Another study, done in 2002, tracked and predicted future urban growth using GIS within Winnipeg, Manitoba, Canada (Hathout). The purpose of the study was to map the impacts of urban growth on agricultural land as well as the rate at which that growth was occurring (229). Using this focus helped in assessing what type of analysis was best to use to illustrate the patterns of growth Powhatan has experienced and can potentially experience in the future. The study also helped illustrate the numerous ways of approaching this type of representative analysis of development in part that it differed so greatly from the Maryland approach. This study specifically focused on the impacts on agricultural land. Its conclusions used very specific exactions of urbanization rates in two separate rural-urban fringe designations in Winnipeg and clearly showed an accelerated rate of exurban development in a certain region (238).

Reading this study and the conclusions from it helped factor in how to formulate questions from a more macro-level, as opposed to the previous study which focused very heavily on analysis at the parcel level.

In 2015, the County of Albemarle in Virginia included a growth management section in their updated comprehensive plan. Although it is not a mapping analysis of past, current and future residential land use, the chapter provides language that is synonymous with the overall goal of open space preservation in Powhatan. The chapter relies heavily on the foundation that there is a substantial need to preserve land and space for resources for future generations (3.3). This, of course, is a primary goal of growth management legislation. To achieve this goal, the county lists several strategies it uses to help owners of rural property avoid the financial need to sell off their property for subdivision, including education, the use of incentives, and other voluntary and regulatory methods (3.7). The plan cites budget resources being constrained with the occurrence of more rural development, and use a number of strategies to achieve their goal of growth management. These include having specific goals, objectives, and strategies for Development Areas and for Rural Areas, as well as having larger goals, objectives, and strategies for the growth management plan as a whole. This plan was referred to numerous times throughout the Recommendations and Implementation sections (sections 4 and 5, respectfully).

Lancaster, Pennsylvania introduced a large sub plan they titled, "Balance" in 2006, which focused on the growth management aspect of their comprehensive plan. As is prevalent in much of the literature and other plans, Lancaster's growth management plan focuses on two areas as well, urban growth areas and rural areas (3-5; 3-6). Within each of these area types, there are objectives and strategies to help achieve goals. Where it is important to take note in this case is in the details of their implementation strategy. Although this plan didn't take the approach of mapping historic development to project future patterns, it was useful in reference to implementation strategies and the measurement of their individual successes.

GROWTH MANAGEMENT AND SMART GROWTH BEST PRACTICES

Best practices in growth management have evolved over time (Horn, 2014, p. 2). The first instances of growth management were in direct response to the continued urbanization and industrialization in post-World War II cities and surrounding areas (Horn, 2014, pp. 2-3). These policies aimed to put a physical barrier, often referred to as a green belt, around a city with the intention of keeping development within the inner circle of the belt. Development inevitably occurred outside those belts, and resulted in "satellite communities" or leapfrog developments (Horn, 2014, p. 3). The second wave of growth management policies began in the 1970's, and resulted in policies that tried not only to limit growth, but also to accommodate future growth (Horn, 2014, pp. 3-4). Examples of these types of practices were early Urban Growth Boundaries and were employed in various cities around the world at the time (Horn, 2014, p. 4).

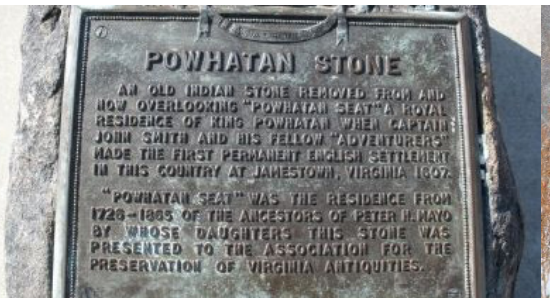
The third generation of growth management best practices was brought on by means of "clever" marketing in the United States (Horn, 2014, p. 6). "Smart growth" became synonymous with growth management, and exists within the American growth management theory (Horn, 2014, p. 6). According to Horn, the goals of smart growth in the American growth

management theory include: achieving a sense of community and place by mixing land uses; decreasing traffic congestion and increasing transportation options; tempering lower-density sprawl; protecting open space and preserving natural resources; promoting public health and urban revitalization; and decreasing taxes and costs of infrastructure. Following this American growth management theory, smart growth policies and theories were adopted by various European institutions as well (Horn, 2014, p. 7). Today, growth management and smart growth are seen as key aspects in planning for both urban and rural communities.

The Colorado Center for Sustainable Urbanism, part of The University of Colorado Denver's College of Architecture and Planning, houses The Sustainable Development Zoning Code, which presents models for implementing sustainable policies and has provided guidance to numerous cities throughout the country in the process of updating planning documents (UC Denver). The Colorado Center for Sustainable Urbanism developed a code framework that consists of different focuses of sustainable development, including environmental health/natural resources, natural hazards, land use and community character, mobility/transportation, community (development and public participation and benefits), public health issues, energy, and livability. Each of these sections is subdivided and many are updated in various iterations of the framework.

The Environmental Protection Agency published a series of policy suggestions entitled, "Essential Smart Growth Fixes." In 2009, the agency put out its Essential Smart Growth Fixes for Urban and Suburban Zoning Codes, which consisted of 11 "essential fixes" to help temper common impediments to smart growth implementation. Each of these fixes describes a traditional problem associated with growth management and provides a series of suggestions to overcome it. In 2010, the agency put out a document titled, Putting Smart Growth to Work in Rural Communities. This publication highlights communities across the United States that have put smart growth policies into place. Then in 2012, the EPA released a follow up document titled, Essential Smart Growth Fixes for Rural Planning, Zoning, and Development Codes. In this iteration, the focus falls on helping rural communities maintain their rural character while simultaneously not stifling their economy. However, this publication has limitations, including its sole focus on land use strategies.

SECTION III
EXISTING CONDITIONS



The following section details existing conditions that are relevant to the analysis performed in Section 4 of this document. Of note are housing development trends, population demographics and historical growth rates, as well as current administrative policies and procedures for subdivisions. They are separated into subsections below.

LAND USE AND DEVELOPMENT TRENDS

Land use in Powhatan County is primarily residential and agricultural. Of the 15,218 parcels in the county as of 2018, only 485 were listed as commercial or industrial, whereas 14,187 parcels were listed as residential (total of all residential categories combined). When researching current and past land use in the county, there were multiple figures regarding the county's total land area. The county's comprehensive plan listed the county as having 272 square miles (174,080 acres), whereas the Census lists the county as having 262 square miles (167,680 acres). The difference of 6,400 acres is notable. Further, the sum total of square miles from the tax parcel data that was calculated in the aforementioned coordinate system came to 259.5 square miles, or 166,096.96 acres. Because of the lack of GIS data that reflected the first two totals, all calculations were performed under the operating assumption that the figures may be inexact depending on actual acreage calculations. However, the author felt as though using parcel-level acreage calculations performed in ArcMap 10.5.1 would grant the most consistency to the following analysis.

TABLE 2: Current Land Use Classifications in Powhatan (2017)

Land Use Category	Total Number of Parcels	Total Number of Acres*	Percentage of Total Acreage
Residential (2)	13,310	52,659.32	33.26%
Commercial and Industrial (4)	485	1,921.71	1.16%
Rural Residential (5)	872	35,081.26	21.12%
Agricultural (6)	243	59,114.68	35.59%
Public Land, USPS (71)	1	9.78	.01%
Public Land, state-owned (72)	42	9,490.10	5.71%
Public Land, county-owned (74)	35	384.98	.23%
Churches and cemeteries (76)	113	2,758.08	1.66%
Group homes/Large residential (77)	5	12.15	.01%
Public Land, county schools (78)	19	243.55	.15%
Public Land, utilities (79)	65	524.70	.32%
Not listed (‘ ‘)	28	1,322.88	.80%
Total	15,218	166,096.96	100.00%

**Acreage figure is taken from the shapefile provided by Powhatan County and uses the field Acres_NAD that was calculated using ArcMap 10.5.1 geometric measurements. The acreage calculations were performed in the projected coordinate system <NAD_1983_ StatePlane_Virginia_South_FIPS_4502_Feet >.*

Using the MYRBLT (Year Built) field in the parcel shapefile, Table 3 was put together to numerically show the change in development patterns as seen over each decade. The table tracks the number of parcels that had structures built in the timeframes noted. It also notes the total number of acres developed during the timeframe as well as the average lot size developed. The table does not account for land development that occurred prior to the recording of the structural completion according to county records, thus the table approximates the number of parcels developed for each decade or timeframe within. It is important to note that these figures include all types of development, including residential, commercial/ industrial, schools, and other public facilities. A full list of the county's land use classifications is available in Table 2.

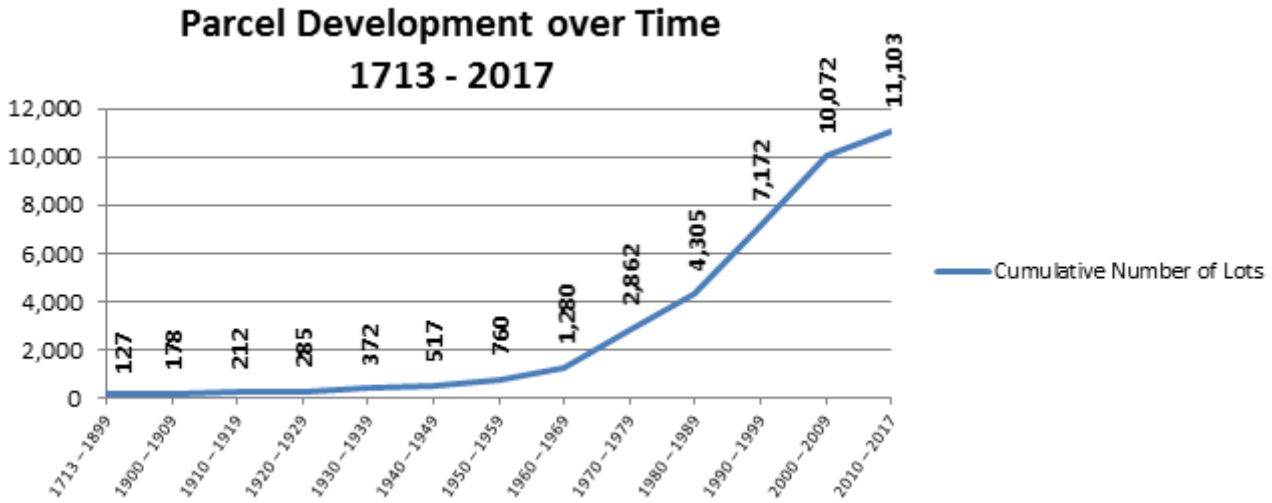
TABLE 3: Development in Powhatan 1713 - 2017

Decade/ Timeframe	Number of Parcels Developed	Number of Residential Parcels	Residential Percentage of Development	Number of Acres Developed*	Average Lot Size Developed (Acres)
1713-1899	127	118	92.91%	8,651.46	68.12
1900-1909	51	49	96.08%	3,138.33	61.54
1910-1919	34	34	100.00%	1,104.54	32.49
1920-1929	73	70	95.89%	1,011.86	13.86
1930-1939	87	87	100.00%	2,465.56	28.34
1940-1949	145	129	88.97%	2,155.93	14.87
1950-1959	243	223	91.77%	4,329.68	17.82
1960-1969	520	494	95.00%	3,853.47	7.41
1970-1979	1,582	1,551	98.04%	10,364.81	6.55
1980-1989	1,443	1,408	97.57%	10,372.94	7.19
1990-1999	2,867	2,817	98.26%	13,923.60	4.86
2000-2009	2,900	2,799	96.52%	15,010.19	5.18
2010-2017	1,031	1,011	98.06%	6,178.99	5.99
1713-2017	11,103	10,790	97.18%	82,561.36	7.44

**The acreage calculations were performed in the projected coordinate system <NAD_1983_ StatePlane_ Virginia_South_FIPS_4502_Feet >.*

As seen in Figure 4, parcel development in the county was extremely slow until the middle of the 20th century. This graph takes the data from Table 3 and visually represents the drastic increases in development that have occurred in recent decades.

FIGURE 4: Cumulative Parcel Development Over Time (1713-2017)



In line with the population trends mentioned in Section 1, structural development in Powhatan remained relatively stable until the 1970's where more rapid development began to occur. Development picked up momentum starting in the early 1970's and has continued to grow at rates higher than the early 20th century saw. This matches population growth patterns depicted later in the population demographics and growth rate subsection.

FIGURE 5: Development Over Time (1713-2017)

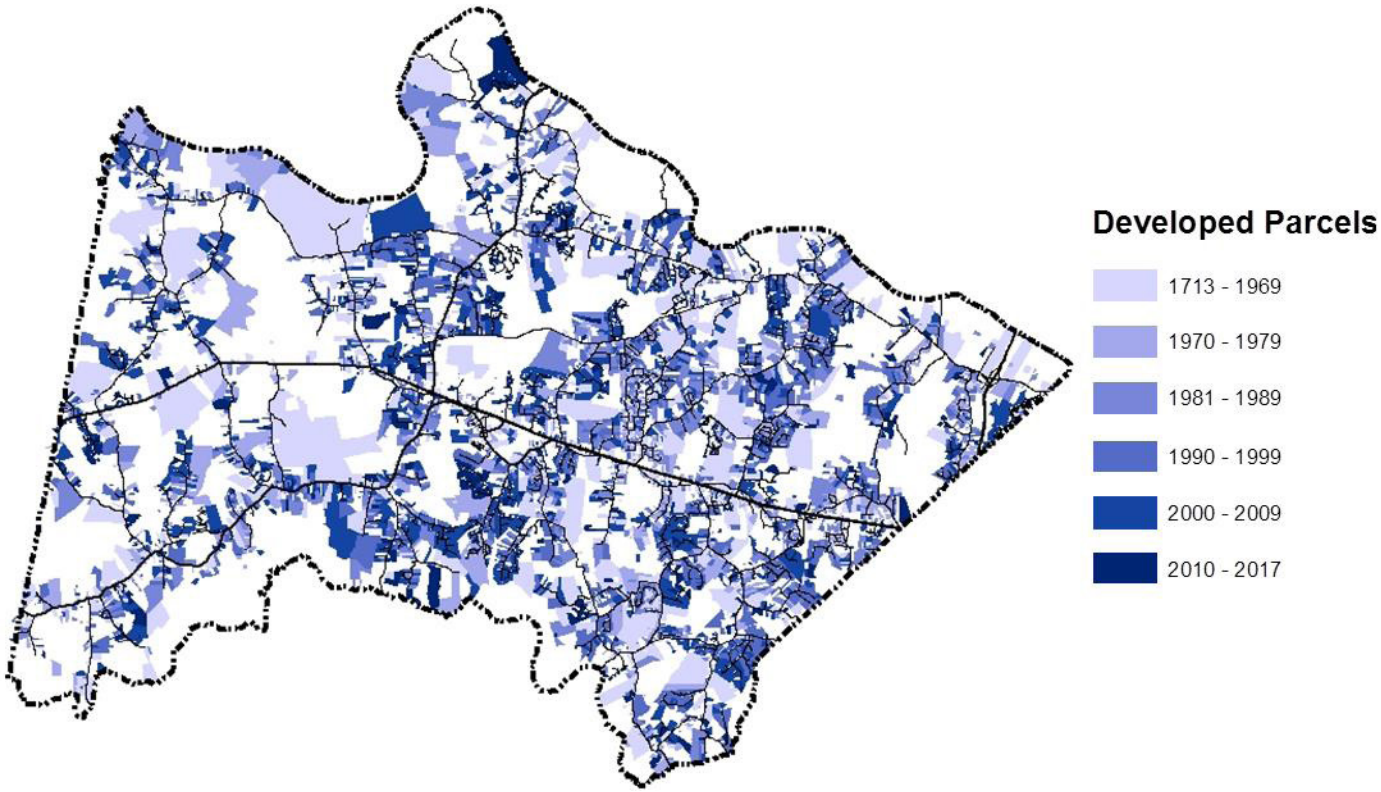


Figure 5 maps the structural development over time, indicating a large percentage of the total development has occurred in the past 40 years, aligning with the data from Table 3. The map has been symbolized as determined by the legend above. A color gradient was chosen in an effort to help visually categorize the decade of development.

Over the past few decades, the county has seen a lot of subdivision development primarily off of secondary and tertiary roads throughout the county. As seen in Figure 5, much of the county's open space, especially that off of main roads, has already been developed. Because of this, there are numerous infrastructure implications for future growth that will be further discussed in Section 5.

POPULATION DEMOGRAPHICS AND GROWTH RATE

Population demographics help planners better understand the community being planned for. For this section, several tables and datasets from the Census Bureau were synthesized in order to gather the relevant figures for analysis. There are numerous tables and figures in this section that illustrate the various population analyses performed.

The data used for migration pattern analysis in Powhatan County was from the American Community Survey County-to-County Migration Flows table from the 2012-2016 ACS data used throughout this document. According to the data, the net migration to Powhatan County was +518 people.
Table 4 illustrates the figures from the Census. However, it is interesting to note that out of the 2,449 total people who migrated to Powhatan from other counties within Virginia or other states, only 399 (or 16.3%) migrated from other states. The remaining 2,050 migrated from various parts of Virginia or 83.7%). From the population that migrated from Powhatan, 235 (or 12.4%) moved to other states, whereas 1,659 (or 87.6%) moved to other counties within Virginia.

Although these figures are available from the American Community Survey, it is important to understand that they are estimations based on a population sampling. Therefore, in some records, the margin of error exceeds the total migration to or from Powhatan. As such, it is important to keep in mind that these figures are approximations based on the survey performed by the Census Bureau.

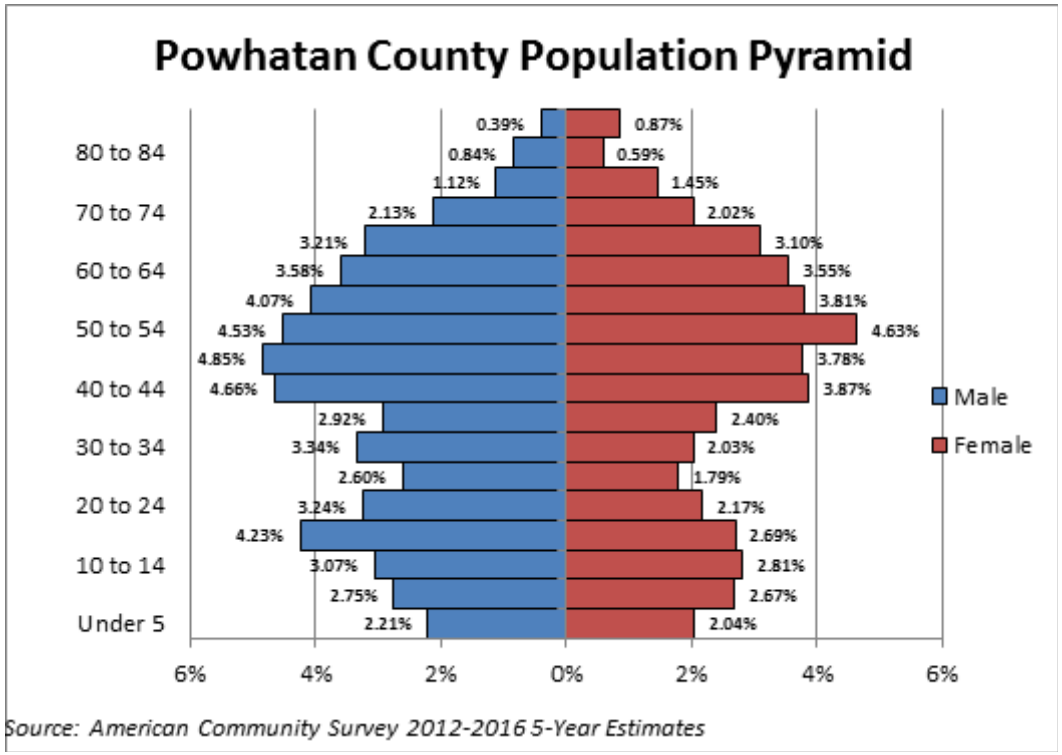
As Figure 6 illustrates, the breakdown of age demographics of the population in Powhatan indicates a larger aging population than initially expected. As of the American Community Survey 5-Year Estimates for 2012-2016, approximately 80.4% of the county's population is aged 18 years and older. Comparatively, approximately 76.9% of the population of the entire United States was above 18 years per the same survey year. The median age in years in Powhatan was 44.3, while it was 37.7 nationwide. This is another indicator of an aging population. There were also more males (53.7%) than females (46.3%) in the county.

TABLE 4: Migration Patterns (2012-2016 5-Year ACS Estimates)

YEARS	MIGRATION FROM OTHER VIRGINIA COUNTIES	MIRGRATION FROM OUTSIDE VIRGINIA	MIGRATION FROM POWHATAN	NET MIGRATION TO POWHATA	GROSS MIGRATION
2012 - 2016 ACS	2,050	399	1,894	518	4,306

In order to help determine future land consumption and development needs in the county, it is important to calculate the population growth rate and to project future population totals. According to Virginia LMI (Virginia Labor Market Information, run by the Virginia Employment Commission), the population for Powhatan County is projected to grow substantially in the coming decades.

FIGURE 6: Powhatan Population Pyramid (2012-2016 5-Year ACS Estimates)



Source: American Community Survey 2012-2016 5-Year Estimates

Table 5 illustrates these projected increases, as well as the percentage of growth from the base Census year of 2010. The projections equate to a .28% increase in total population by 2040, which would put the county at approximately 35,853 residents. With an average household size of 2.6 people, the 2040 housing needs for the county would be approximately 13,789.6 households (Census, 2010).

TABLE 5: Population Projections for Powhatan County

Census Year	Population/Projection*	Percent Increase
2010	28,046	--
2020	28,752	.03%
2030	32,568	.16%
2040	35,853	.28%

SOURCE: *Virginia Employment Commission, Virginia LMI*
**Projections current as of February 2019*

SPECIAL AREAS

Within Powhatan's 2010 comprehensive plan, there is a list of three Special Area districts. These districts serve as the county's primary focus for future development. The areas include: the 711 Village, located in the northeastern part of the county off of VA-711 and VA-288; the Route 60 Corridor East area, located off of US-60 in the eastern part of the county; and the Courthouse Village, located in the center of the county off of US-60. Figure 7 depicts these Special Area districts. These special areas are important to note because they each reflect different development objectives the county envisions, and each of these Special Areas has an accompanying plan within the county's 2010 comprehensive plan.

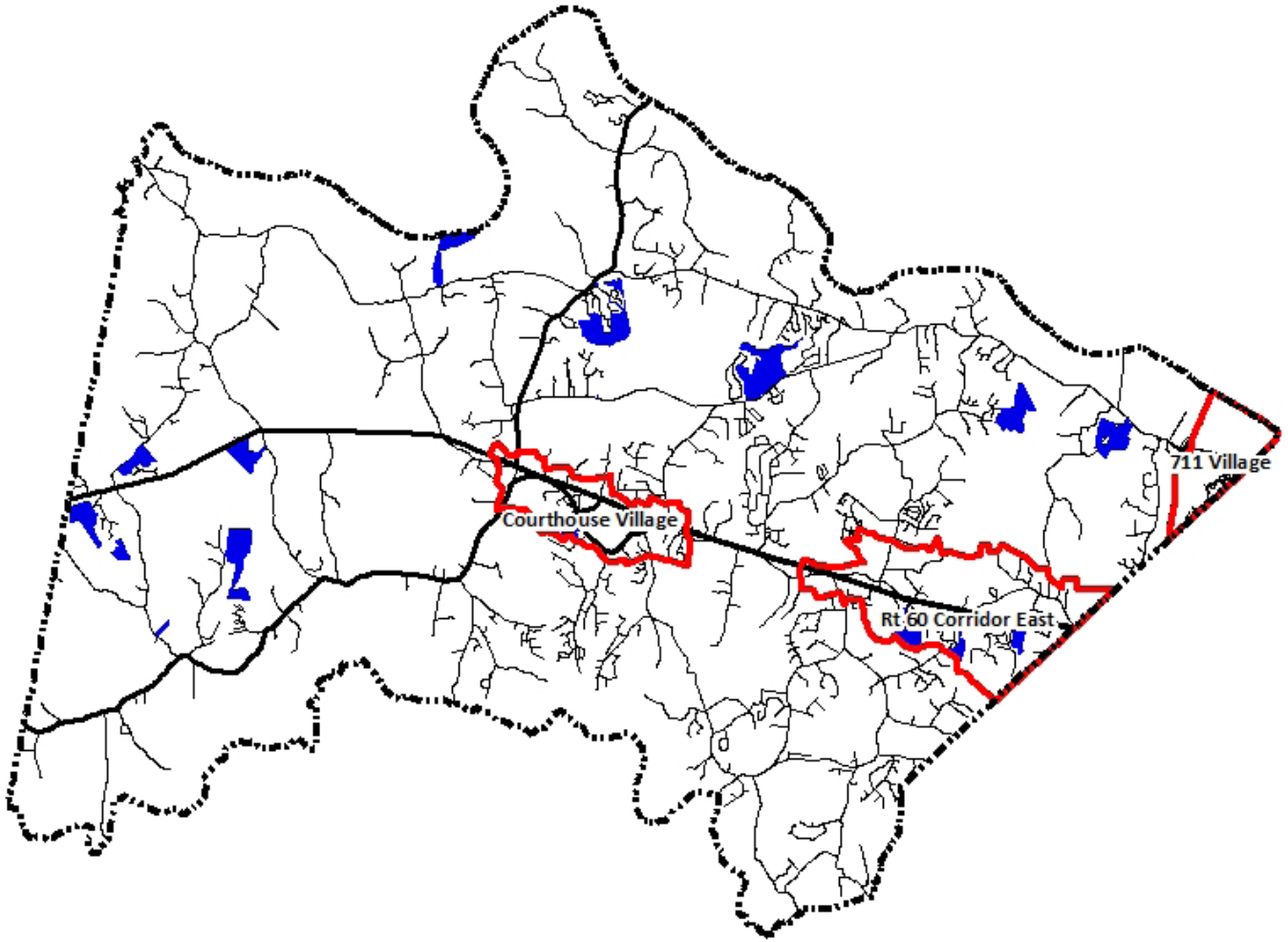
The Route 60 Corridor East area is targeted for both business and residential growth. The special area plan for this area included in the 2010 comprehensive plan noted village center development and suburban density developments along the corridor, with village residential developments and lower-density residential development surrounding the aforementioned higher-density development.

The Courthouse Village area is considered both the governmental and historic epicenter of the county. The 2010 comprehensive

plan noted the preference for maintaining more of an economic development focus within this area. It noted the importance of developing a cultural center to draw tourism, and creating walkable neighborhoods and village centers in this area. Avoiding development within noted historic areas south of Route 60 will help preserve the historic appeal of this specific special area.

The 711 Village special area includes natural conservation/preservation land, pockets of residential development, and light commercial uses primarily along the 711 corridor. Because of this area's proximity to the James River, much of the northside of the area is slated for natural conservation. The land adjacent to the Route 711 corridor has been targeted for village center development, allowing both light commercial and rural-village residential development in various areas throughout the county.

FIGURE 7: Map of Special Area Districts



PART II

SECTION IV
ANALYSIS AND RESEARCH FINDINGS

This section begins with a breakdown of land use and other indicators used to analyze the county and its potential for future development at the parcel level. It also describes the generalities and assumptions that were used. Lastly, it details various scenarios that the author found were the most feasible future scenarios for growth and development countywide based on: growth rate calculations; locational factors (proximity to roadways, current land use type, land cost, and current zoning); locations of existing population, and time thresholds.

According to the county's most recent comprehensive plan (2010), the county does not have the infrastructure in place to withstand the construction and maintenance of numerous, widespread smaller-lot subdivisions (p. 31). In turn, there will need to be infrastructure-related improvements made throughout the county in order to withstand future development. This is discussed in the Recommendations section (Section 5).

Ideally, knowledge of current and future land consumption rates within the county would be useful to help infer how much, and where, development will occur in the future. The UN developed a series of Global Goals for Sustainable Development, one of which focuses on Sustainable Cities and Communities (UN SDG, Goal 11). The statistics offer several indicators within each goal, each of which is measurable and has associated data. The raw data and metadata for Indicator 11.3.1 (Ratio of land consumption rate to population growth rate) is currently unavailable as of 2018. If this measure was available, analysis using the formula for land consumption ratio would have been performed. However, since it is not yet available, the following calculations of consumption rate reflect patterns seen in GIS parcel data provided by Powhatan County that has been synthesized with data provided by the Census Bureau.

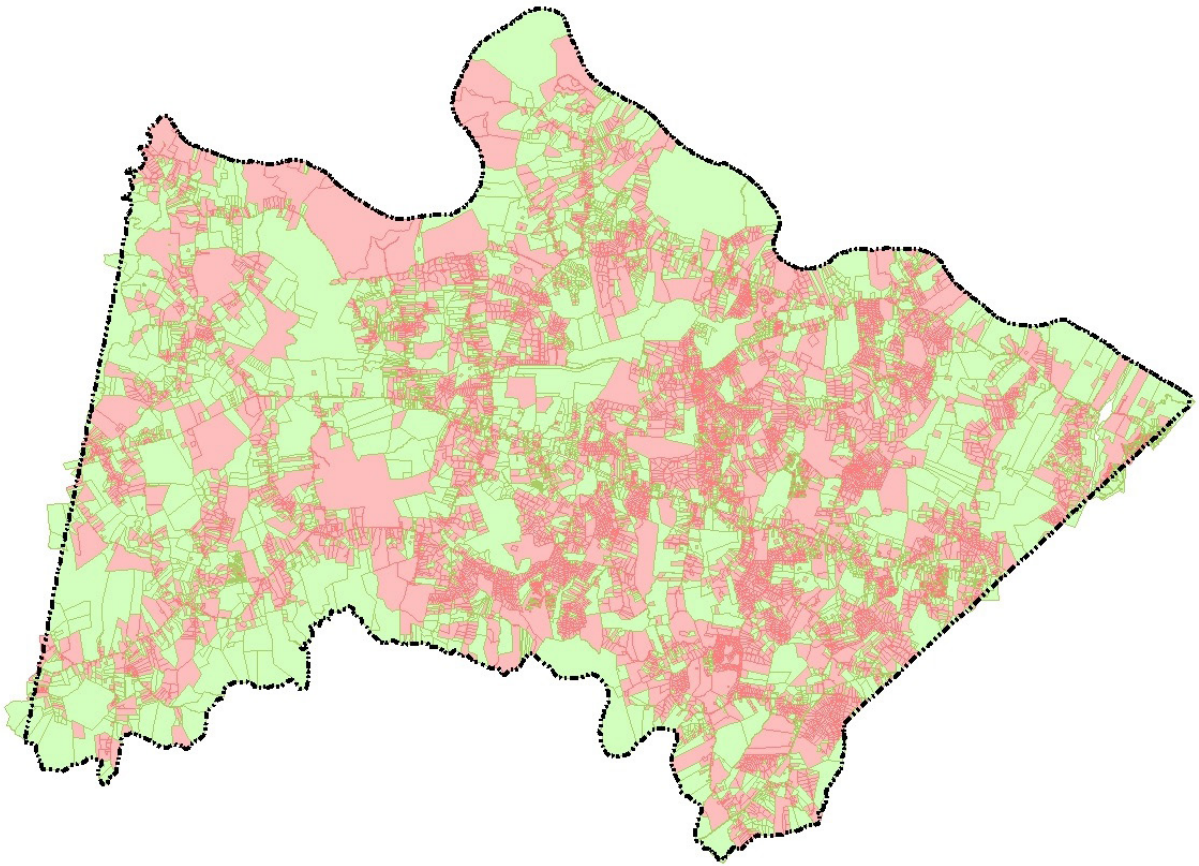
For the purposes of this analysis, the data taken from Powhatan County included vacant parcels, which were pulled from the original data based on a number of data categories within the file. Vacant parcels, along with satellite imagery and other existing paper maps from the county were used to denote unconsumed land. Because this is an analysis of new development, not infill development, the potential for infill development is discussed in The Plan section of the document.

There were a number of fields used heavily in this analysis, one being the NAD_Acres field, calculated in the county's shapefile using the calculate geometry function in ArcMap. The NAD_Acres field represents the number of acres each parcel contains. As mentioned earlier, the reason for using this field

over the MACRES field provided in the original data was that a large number of parcels were missing data in the MACRES field. Because this analysis relies so heavily on numerical calculations, it was important to have a standardized acreage field in order to perform the calculations. Of course, this implies that the calculations per parcel may not line up exactly with the county's records of acres per parcel.

To calculate acreage of vacant land, the fields MYRBLT (the year a structure was built), MIMPRV (improvement value of the property's structure/s), and MOCCUP (occupancy code) were used to determine if a habitable structure had been built on the property. The total number of undeveloped acres came to 83,535.6 acres. After these parcels had been isolated, copies of maps from the county were used as a reference. Vacant land with mobile homes, which are not reflected in the land use categories, were removed from the vacant land layer by referencing documents provided by the county. Land that has been approved for development but not yet platted was also removed from the vacant layer, which totaled 2,990.7 acres.

FIGURE 8: Vacant Land in Powhatan



SOURCE: *2017 tax parcel shapefile*
Vacant land in green; developed land in red

The original GIS data did not list these parcels/plots of land as already approved for development, so they were manually removed. The total number of acres for parcels with mobile homes came to 2,088.1 acres. According to this method, the vacant, approved/unplatted parcels constituted a total of 4,013 parcels on 78,456.8 acres. A map of the County's vacant land is depicted in Figure 8 with vacant parcels in green and developed parcels in red.

As shown in Figure 8, there is vacant land in the county that does not adjoin roads or preexisting infrastructure. This, in turn, could very well impact future development costs. A buffer analysis was performed to determine how many of the vacant parcels were within .25 miles of existing roadways. The result of the buffer analysis found that 3,828 of the 4,013 vacant parcels (or 95.4%) were within a quarter mile of an existing roadway.

Because there has been such a drastic increase in development in recent decades, data from the past 20 years (1997 to 2017) was analyzed to determine averages that were used in the scenarios. To assess approximately how many new homes per year will be built going forward, data from the tax parcel shapefile was mined and tabulated. It was found that from 1997 to 2017, there was an average of 241.7 parcels developed per year, with 234.4 being residential. The annual figures, along with 20-year averages, are presented in Table 6, which illustrates development trends over the past 20 years.

TABLE 6: Structural Development in Powhatan 1997-2017

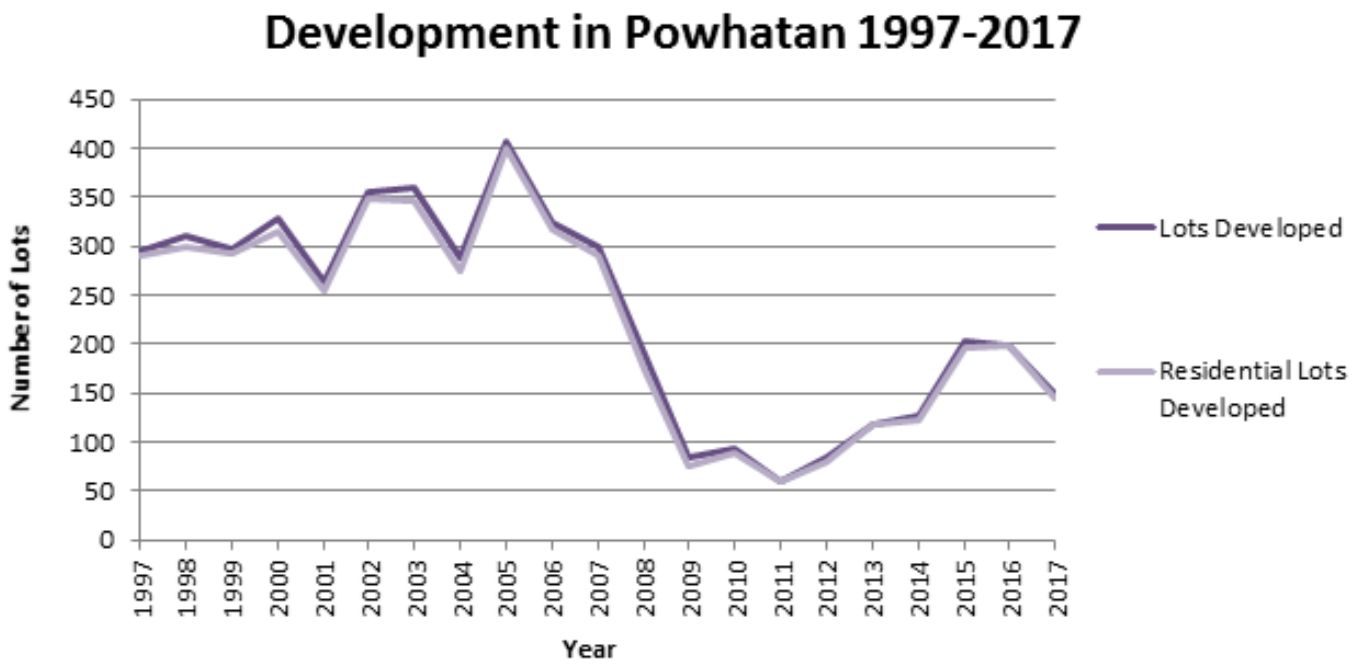
Year	Lots Developed	Total Acres Developed	Average Lot Size (Acres)	Residential Percentage of Development	Residential Lots Developed	Total Residential Acres Developed	Average Residential Lot Size (Acres)
1997	295	1,270.40	4.306	98.3%	290	1,230.90	4.244
1998	310	1,738.77	5.609	96.8%	300	1,326.30	4.421
1999	298	1,264.14	4.242	98.0%	292	1,243.37	4.258
2000	328	2,727.22	8.315	96.0%	315	1,502.68	4.770
2001	263	1,409.13	5.358	96.6%	254	1,344.91	5.295
2002	355	1,474.84	4.154	98.3%	349	1,442.39	4.133
2003	359	1,462.49	4.074	96.7%	347	1,375.41	3.964
2004	289	1,355.74	4.691	94.8%	274	1,323.49	4.830
2005	407	1,765.20	4.337	98.5%	401	1,625.01	4.052
2006	324	1,450.08	4.476	98.1%	318	1,301.40	4.092
2007	300	1,788.49	5.962	96.7%	290	1,425.88	4.917
2008	190	1,127.72	5.935	92.1%	175	952.97	5.446
2009	85	449.27	5.286	88.2%	75	433.08	5.774
2010	93	385.05	4.140	94.6%	88	385.05	4.376
2011	61	306.27	5.021	96.7%	59	301.50	5.110
2012	84	474.86	5.653	96.4%	81	431.82	5.331
2013	118	1,149.38	9.741	99.2%	117	529.59	4.526
2014	126	636.51	5.052	97.6%	123	627.31	5.100
2015	202	1,303.37	6.452	97.5%	197	1,066.03	5.411
2016	198	1,067.05	5.389	100.0%	198	1,067.05	5.389
2017	149	856.49	5.748	97.3%	145	854.58	5.894
Total	4,834	25,462.49	--	85.6%	4,688	21,790.74	--
Annual Average 1997-2017	241.7	1,273.12	5.267	--	234.4	**1,089.54**	**4.648**

In addition, as Table 6 illustrates, a total of 25,462.5 acres were developed from 1997 to 2017. From that total, there were approximately 21,790.7, or 85.6%, residential acres developed over the same time frame. One assumption this analysis made is the average number of new residential lots, or parcels, developed per year. Should development continue to occur at the rate it has been over the last 20 years (at 5.067 acres/residential parcel), the county's remaining vacant lots could be completely consumed by 2080. The assumption regarding future land consumption was made based on the calculated average of residential acres developed per year (1,089.5 acres) over the past 20 years (Table 6). If 1,089.5 new residential acres continue to be developed annually, the county will consume their remaining open space in approximately 72 years.

An important item to note in Table 6 is the impact the recession had on new development, both overall and residential. Beginning in 2008, there is a marked drop in number of lots developed. This downward trend continues until 2012, where it picks back up; however, development has not yet reached the point of pre-recessional figures in its rebound. Figure 9 illustrates this phenomenon. This is an important implication because it is an economic event that inevitably skews the projection calculations. Figure 9 also illustrates that a large percentage of total development in Powhatan is residential.

To determine the amount of housing that will be needed in future years, housing unit data was synthesized with population data. According to the GIS parcel file, there were approximately 10,673 housing units that serve the estimated 28,601 residents of the county (as of 2017). However, according to ACS (2012-2016 5-year estimates), there are 10,416 housing units, 9,866 of which are occupied. Table 7 displays the occupied housing unit rate from 2012-2016 was 88.6% in the county according to the Census, which equates

FIGURE 9: Number of Lots Developed 1997-2017



to a vacancy rate of 11.4%. The county's household size (ACS 2012-2016) is 2.6 people per household. Additionally, 89.7% of people from age 1 and above are noted as living in the same house as one year ago, implying that a large percentage of residents stay put in their homes. Because the GIS data does not account for apartment homes specifically through their dwelling unit counts, it was impossible to calculate the number of housing units through GIS alone. Therefore, the figures from ACS (2012-2016) 5-year estimates were used as a reference, but the data from the parcel file was ultimately used for housing unit assumptions.

Out of the 14,182 parcels that are in a residential category (categories 2 and 5 within the data file) in the county's land use classifications, only 10,673 have information on what year the building was constructed. The year built field is often an indicator, along with improvement information and other relevant property information within the file, of whether there is any development

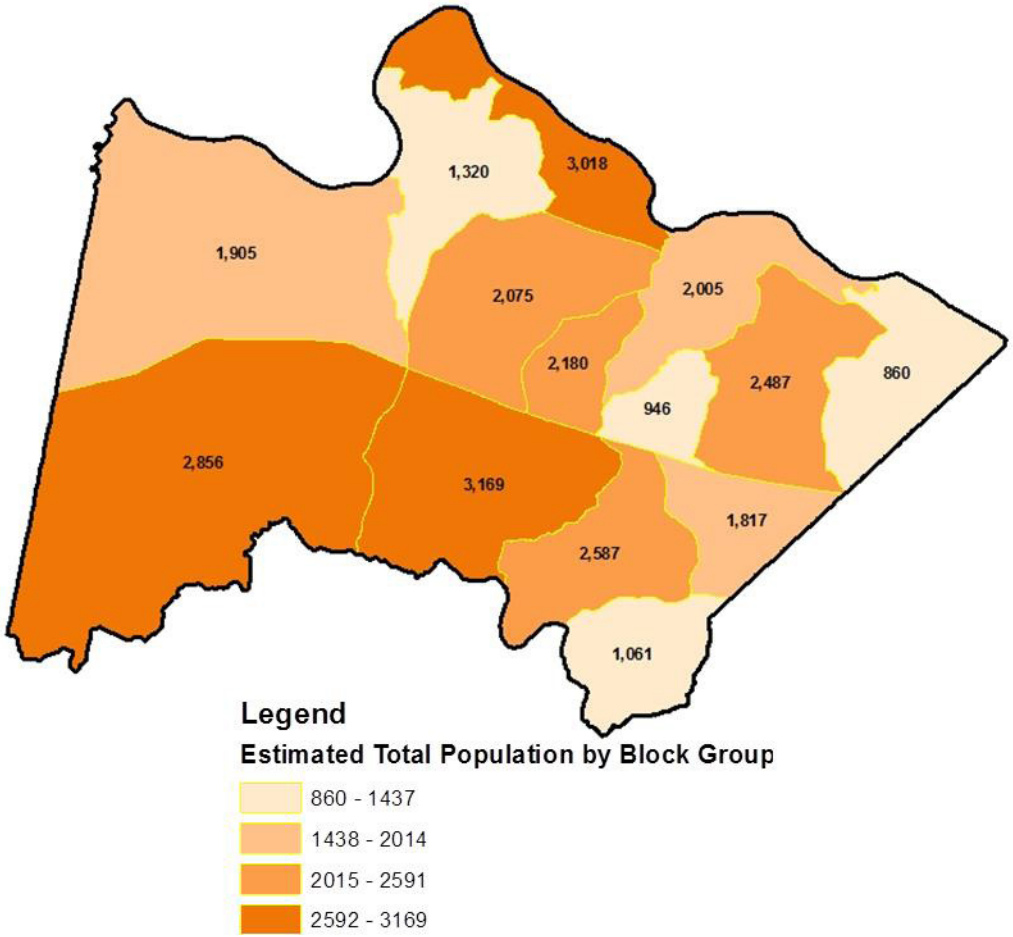
TABLE 7: Vacancy and Occupancy Rates, ACS 2012-2016

Status	Number of Units	
Occupied	9,866	88.6%
Vacant	550	11.4%
Total	10,416	

on the property. However, according to the most recent housing estimate from the American Community Survey (2012-2016), Powhatan has approximately 10,416 housing/dwelling units. The discrepancy between the methods behind determining developed versus undeveloped parcels in Powhatan in GIS and the figure from the Census is 257 parcels. Because the data does not include dwelling unit counts for each parcel, this analysis operates on the assumption from the data that there are approximately 10,673 dwelling units available within the county as of 2017 per the existing development in the GIS file. As noted in Section 3.2, the projected number of households in 2040 is approximately 13,789.6 households. This is an approximate 3,116.6 household increase over this period.

Another element taken into consideration was the location of the current resident population. Using block group data from the Census (2012-2016), Figure 10 illustrates the geographic distribution of population by block group. This helped determine where the heaviest development has occurred so far throughout the county.

FIGURE 10: Population Distribution in Powhatan, ACS 2012-2016



One of the most difficult aspects of land use planning is adequately predicting future residential and commercial capacity needs. For Powhatan, it was important to reflect the recent trends in growth as they greatly differed from past patterns, and therefore affected growth rate calculations.

In order to map out locations in the county where development might be more prevalent in future years, future housing units/dwelling units were calculated based on projected population growth. To do this, the population projections that were mentioned earlier were used, along with Census data on household size and vacancy rates in the County. With an average of 234.4 parcels developed per year at an average of 4.64 acres per parcel, there is an estimated increase of 1,087.62 acres per year.

The vacant parcels in the county that are zoned Residential (Land Use Code 2) constitute 20.1% of the remaining vacant land at an average of 5.3 acres per parcel, and the vacant parcels that are zoned Rural Residential (5) make up 24.5% (at an average of 41.7 acres per parcel) of the remaining vacant parcels. Commercial zoned vacant parcels are 1.2% of the remaining vacant lots (at an average of 4 acres per parcel). The

land use classification with the largest amount of vacant acreage, however, is Agriculture (6), which has 44.1% of the remaining vacant land at an average of 252.3 acres per parcel.

PERIOD ANALYSES

For this series of analyses, the average annual figures calculated in Table 6 were used to project land consumption in Powhatan should no additional growth management policies be adopted by the county. The period analyses took the average number of residential acres developed over the last 20 years (1,089.4 acres per year) from Table 6 and calculated the approximate number of acres that would be developed for each period noted (5, 15, and 25 years) by multiplying the number of acres by the number of years. The results of these calculations can be found in Table 8.

The county's comprehensive plan uses specific periods for analysis that this analysis tried to reflect. The analyses performed by Powhatan are done in 5, 15, and 25 year increments. Therefore, each of the following period analyses include maps with possible future development in these same increments. Using the estimated increase in acreage figure as noted above, it was possible to calculate an approximate increase in number of acres for each of the noted timeframes. In 5 years, the increased residential acreage would be approximately 5,438.1 additional acres. In 15 years, we see that reach 16,314.2 acres. Finally, over 25 years, the county would see approximately 27,190.4 additional residential acres developed if continued at this rate.

To determine probable locations for residential lots, the vacant parcel layer was analyzed to locate parcels that are already classified as residential through the county's land use classification system. This step was important because these parcels would have less administrative steps to take before development, and therefore are likely to be developed first (as single smaller-lot

TABLE 8: Projected Future Residential Land Consumption (Acres)

Span (Years)	Future Land Consumption (Acres)
5	5,438.1
15	16,314.2
25	27,190.4

residential parcels). Out of the 2,965 vacant parcels classified as residential (land use code 2), there were 15,754.1 residential vacant acres, with an average of 5.3 acres per lot. There were 19,242.4 vacant residential acres (on 462 lots) classified as rural residential (land use code 5), averaging 41.7 acres per lot. A large number of the smaller vacant residential lots are located along roadways (especially around US 60) and next to existing development. When determining which lots might develop within the periods noted, these land use classifications and figures were referred to heavily.

Because of a general lack of spatio-temporal patterns of residential development throughout the county up until now, there is no exact formula or calculation that could be performed to determine where development will occur in the county if no growth management guidelines are written. In turn, the following scenarios use the author's assumptions and judgments based on the breakdown of thresholds mentioned above and knowledge of the county's geography and topography using ArcMap 10.5.1. Figure 12 represents all current development in the county in red and all vacant land in green.

FIGURE 11: Development in Powhatan, 2017

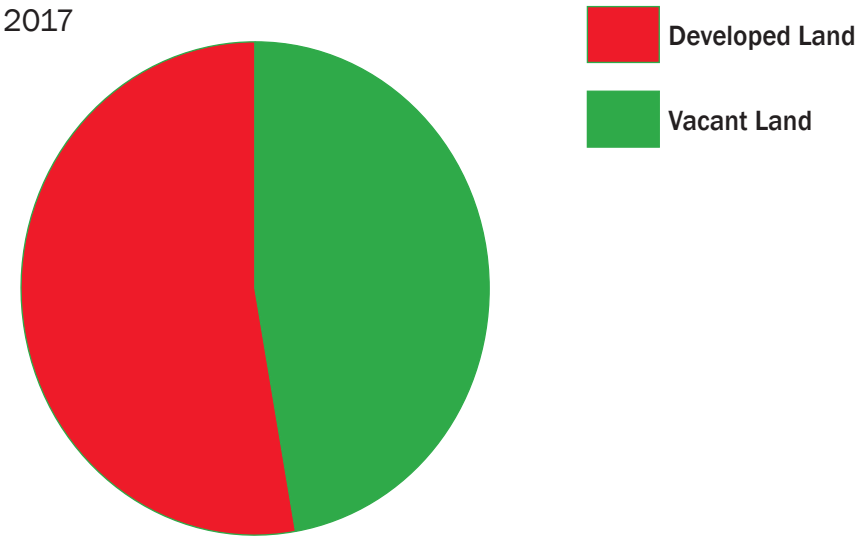
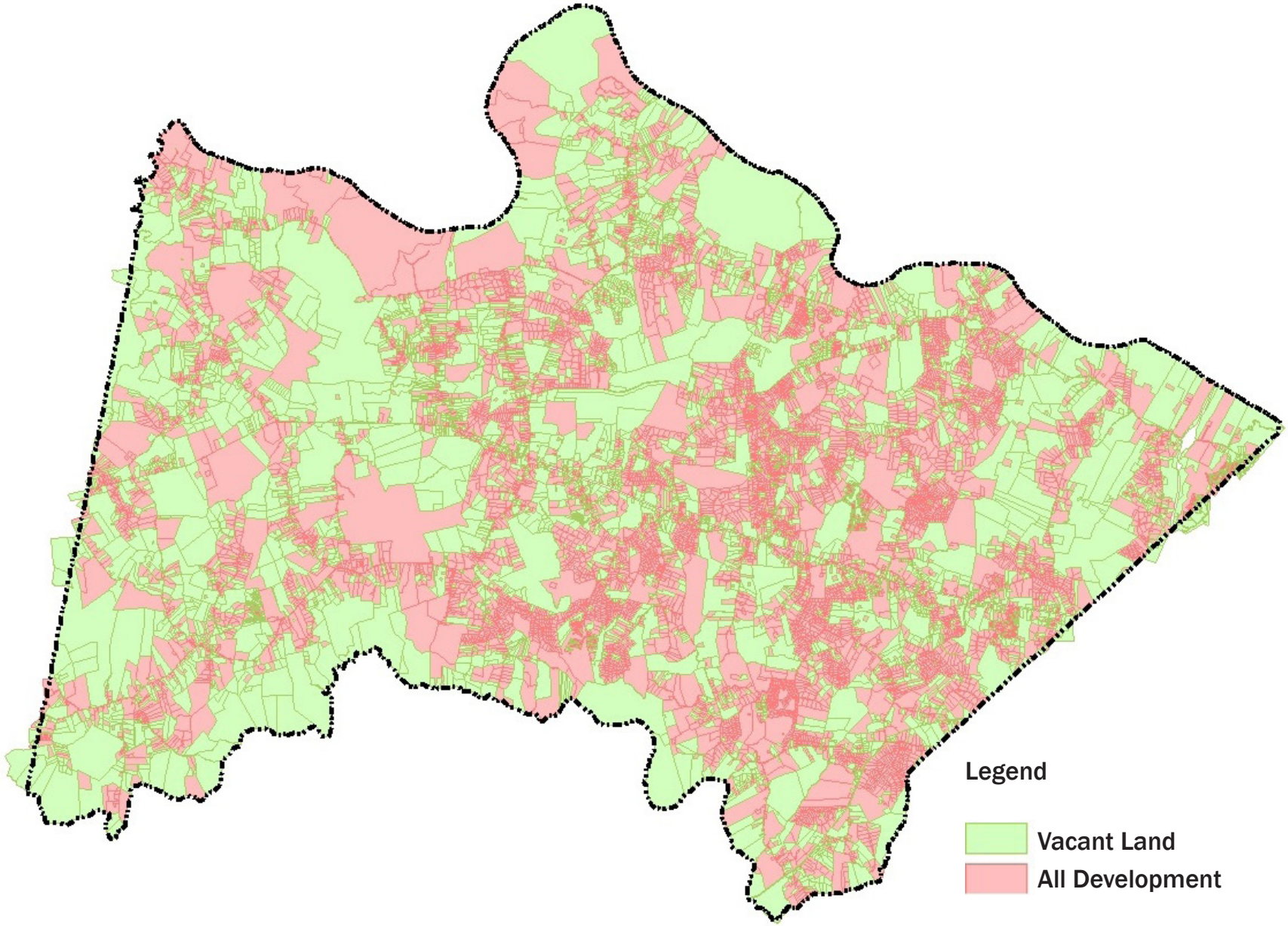


FIGURE 12: Location of Current Development in Powhatan, 2017



These graphs reflect the question:
If residential development continues at the current rate, what will greenspace look like in 5, 15, and 25 years?

FIGURE 13: Greenspace Depletion Over Time

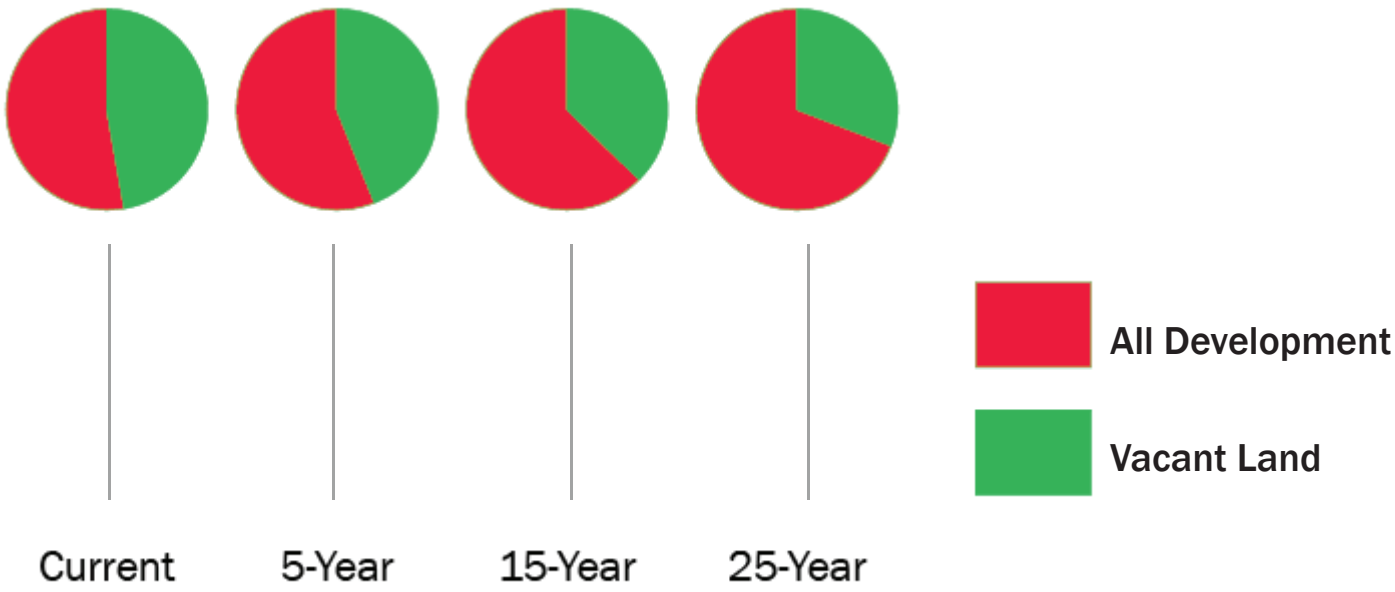


Figure 13 shows various graphs depicting the depletion of greenspace over time should no additional growth management principles be adopted by the county. Using the figures calculated in Table 8, these projections calculated the approximate percentage of developed and vacant land over the coming 5, 15, and 25 years.

As noted above, the 5-year projection of additional residential development in the county is 5,438.1 acres, the 10-year projection is 16,314.2 acres, and the 25-year projection is 27,190.4 acres.

By the 15-year mark in the projections, the county's residential land consumption depicted in red in Figure 12 would be starting to take up a larger percentage of the available open space. The projected impact on open space (green) is undeniable, and would be even more drastic if growth management tools were to be ignored or not implemented.

DENSITY MODELS

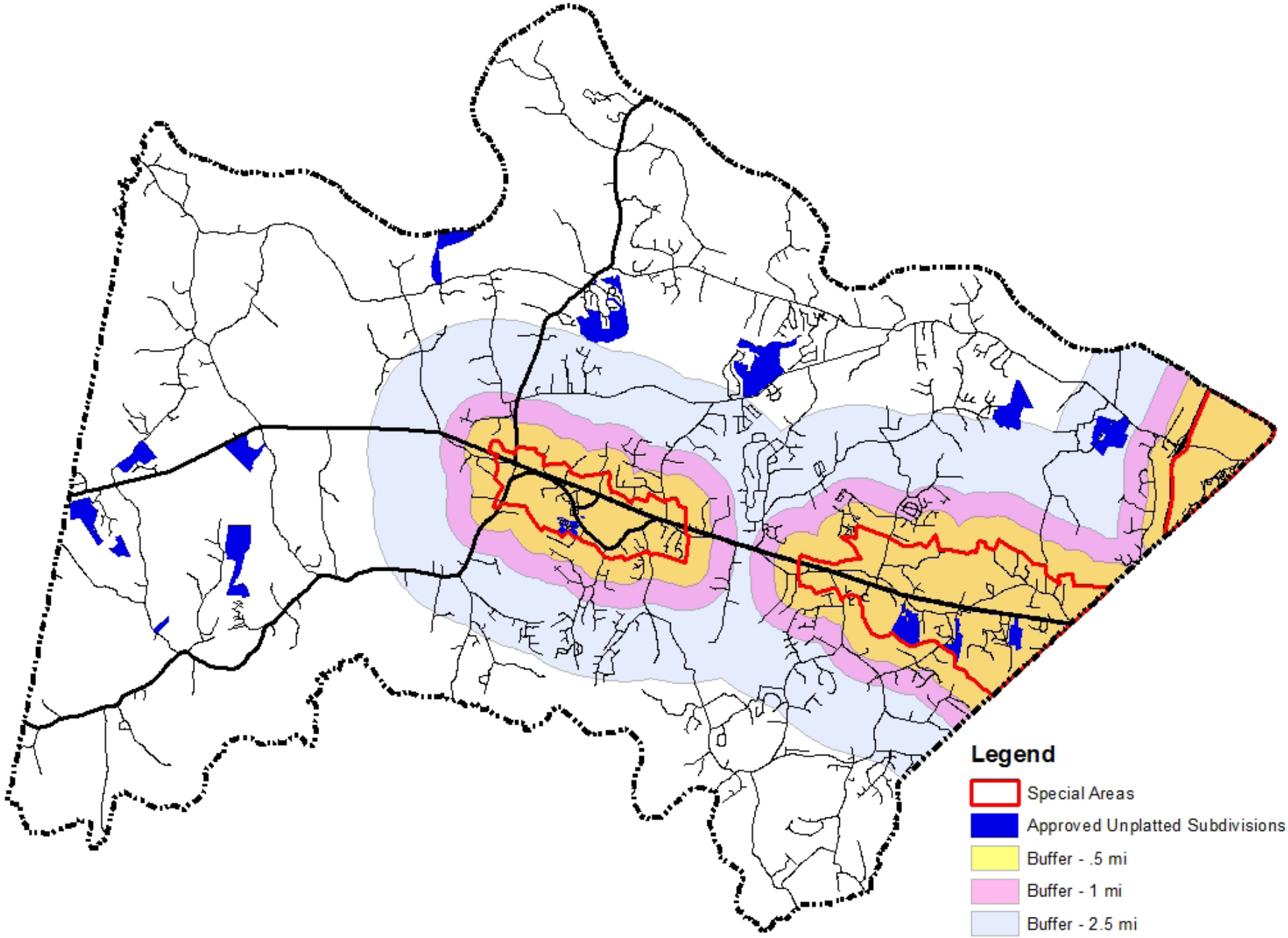
Based on Powhatan County's 2010 comprehensive plan, there are three areas that are indicated for higher density, more compact development within the county. These areas include the Route 60 Corridor East, the Courthouse Village, and the 711 Village. These Special Area Districts were identified as priority zones for future residential development based on prioritization from the county and on proximity to existing roadways and development.

Because these areas have already been targeted for development by the county, this analysis assumed these three locations as a base for future targeted development. Various buffer analyses were run around these priority zones, including .5 mile, 1 mile, and 2.5 mile buffers. Table 9 shows the total amount of undeveloped acres located within each buffer, and Figure 16, located on the next page, displays each buffer as listed.

TABLE 9: Total Number of Undeveloped Acres around Special Areas

Buffer	Undeveloped Acres
.5 mi	5,996.22
1 mi	10,206.97
2.5 mi	24,406.07

FIGURE 14: Special Area District Buffer Analyses



After these buffer analyses were performed, density scenarios were developed based on current zoning information in the most recent ordinance. For each scenario, each buffer analysis was used to determine future density based on the number of undeveloped acres located in each buffer analysis.

Table 10 demonstrates the methodology for classifying residential categories present in Powhatan's comprehensive plan. "Low density" zoning classes include residential categories with less than .5 dwelling units per acre. "Moderate density" indicates those residential classes that consist of .5 to 3.9 dwelling units per acre. Finally, "high density" includes residential categories with 4 or more dwelling units per acre.

TABLE 10: Total Number of Undeveloped Acres around Special Areas

Density Category	Range (dwelling units per acre)
Low Density	.05 - .49
Moderate Density	.50 - 3.99
High Density	4.00 or greater

Table 11 shows how density was analyzed specifically for the purposes of these scenarios, and also illustrates which residential classes fell into each density measure. More rural classifications have much lower densities, and will produce much less dwelling units than higher density classifications, naturally. The following scenarios used the dwelling units per acre calculations listed in Table 11 to calculate a range of approximately how many dwelling units each scenario would or could produce.

TABLE 11: Residential Density per Acre, Powhatan Zoning Classifications (dwelling units per acre)

Density	Residential Class	Max Density (dwelling units per acre)
Low Density	Agricultural-20	.05
	Agricultural-10	.1
	Rural Residential	.1
	Rural Residential-5	.2
Moderate Density	Single-Family Residential	.5
	Residential Commercial	.5
	Crossroads	1
High Density	Village Center	4
	Village Residential	4
	Village Residential Planned Development	4
	Village Center Planned Development	8
	Courthouse Square	8
	Residential Utility*	.5; 1; 2; 4

**The Residential Utility classification in the zoning ordinance has a variety of maximum densities based on various information, such as single-family dwelling vs. townhome, and whether the lot is serviced by public sewer/community water service or neither. Therefore, these variations were too complex to include in this analysis, but each dwelling unit per acre computation is reflected in the table for informational purposes.*

These scenarios used dwelling units per acre (du/acre) and number of undeveloped acres to determine density. The purpose of proposing these scenarios is to help Powhatan prioritize their future housing needs and guide them through the implementation process. It gives them an idea of what land consumption will look like using undeveloped acreage and a range of potential additional dwelling units within each predefined buffer zone. Because there are many larger lot homes being built within the county, these scenarios express density levels at each extreme (low and high density estimations, specifically) to depict how density plays a large part in overall land consumption. Table 12 outlines each scenario's density thresholds. In each scenario, there are tables to illustrate potential additional dwelling units based on the undeveloped acreage found in the three different buffer analyses.

TABLE 12: Density Scenarios

Scenarios	
A	25 % high density 75% low density
B	50% high density 50% low density
C	75% high density 25% low density
D	10% high density 90% low density
E	90% high density 10% low density

An important item to keep in mind while discussing these scenarios was the earlier calculated figure of projected future dwelling units, which was estimated to be 13,790 (rounded to the nearest whole number) in 2040, or an increase of 3,117 dwelling units. Therefore, special attention needs to be paid to the total additional dwelling units produced by each buffer within each scenario. The only scenario that produced a dwelling unit count that was insufficient was the minimum additional dwelling units in the .5-mile buffer in Scenario D. That will be discussed further in the text accompanying the Scenario D table (Table 16).

The reasoning behind calculating these minimums and maximums in each scenario revolved around the potential number of dwelling units within each buffer area. Using the dwelling unit ranges established in Table 10 for both low density and high density, the minimum and maximum number of future dwelling units possible in each scenario were calculated using density as a weighted measure.

SCENARIO A

25% high density
75% low density

In this scenario, each of the calculations produced enough dwelling units to serve the county's future needs. Specifically, the county would not need to expand more than one-half-mile past the special areas in order to accommodate future growth needs. This scenario would fit best in an area of the county that is targeted for slower growth.

TABLE 13: Scenario A

Scenario A							
		Buffer Distance					
		.5 mi		1 mi		2.5 mi	
High Density	25%	1,499.06		2,551.74		6,101.52	
Low Density	75%	4,497.17		7,655.23		18,304.55	
Total Undeveloped Acres		5,996.22		10,206.97		24,406.07	
		Additional Dwelling Units					
		.5 mi		1 mi		2.5 mi	
		Min	Max	Min	Max	Min	Max
High Density	25%	5,996	11,992	10,207	20,414	24,406	48,812
Low Density	75%	225	2,204	383	3,751	915	8,969
Additional DUs		6,221	14,196	10,590	24,165	25,321	57,781

SCENARIO B

50% high density
50% low density

In scenario B, the density distribution between low-density and high-density future development was even. This produced much higher additional dwelling unit figures for each buffer scenario. In this scenario, the county would not need to expand past the one-half-mile buffer.

TABLE 14: Scenario B

Scenario B							
		Buffer Distance					
		.5 mi		1 mi		2.5 mi	
High Density	50%	2,998.11		5,103.49		12,203.04	
Low Density	50%	2,998.11		5,103.49		12,203.04	
Total Undeveloped Acres		5,996.22		10,206.97		24,406.07	
		Additional Dwelling Units					
		.5 mi		1 mi		2.5 mi	
		Min	Max	Min	Max	Min	Max
High Density	50%	11,992	23,985	20,414	40,828	48,812	97,624
Low Density	50%	150	1,469	255	610	610	5,979
Additional DUs		12,142	25,454	20,669	49,329	49,422	103,604

SCENARIO C

75% high density
25% low density

In this scenario, the larger distribution of higher density acreage produces a much higher number of additional future dwelling units than the previous two scenarios. It, too, would not require the county to expand its Special Areas past the one-half-mile mark.

TABLE 15: Scenario C

Scenario C							
		Buffer Distance					
		.5 mi		1 mi		2.5 mi	
High Density	75%	4,497.17		7,655.23		18,304.55	
Low Density	25%	1,499.06		2,551.74		6,101.52	
Total Undeveloped Acres		5,996.22		10,206.97		24,406.07	
		Additional Dwelling Units					
		.5 mi		1 mi		2.5 mi	
		Min	Max	Min	Max	Min	Max
High Density	75%	17,989	35,977	30,621	61,242	73,218	146,436
Low Density	25%	75	735	128	1,250	305	2,990
Additional DUs		18,064	36,712	30,748	62,492	73,523	149,426

SCENARIO D

10% high density
90% low density

Scenario D was the only scenario that produced a total number of additional dwelling units that was insufficient to accommodate projected future growth. The minimum number of additional dwelling units possible within the one-half-mile buffer expansion of the Special Areas came to 2,668 dwelling units. As stated earlier, the county is projected to see an increase of 3,117 dwelling units by 2040. The maximum number of additional dwelling units within the one-half-mile buffer came to 7,441, which would allow for the projected increase. Therefore, if this scenario were to be implemented, careful consideration of exactly how many parcels could be developed in an A-20 (Agricultural-20), A-10 (Agricultural-10), or RR (Rural Residential) zoned land would need to be taken to ensure an adequate number of additional dwelling units.

TABLE 16: Scenario D

Scenario D							
		Buffer Distance					
		.5 mi		1 mi		2.5 mi	
High Density	10%	599.62		1,020.70		2,440.61	
Low Density	90%	5,396.60		9,186.27		21,965.46	
Total Undeveloped Acres		5,996.22		10,206.97		24,406.07	
		Additional Dwelling Units					
		.5 mi		1 mi		2.5 mi	
		Min	Max	Min	Max	Min	Max
High Density	10%	2,398	4,797	4,083	8,166	9,762	19,525
Low Density	90%	270	2,644	459	4,501	1,098	10,763
Additional DUs		2,668	7,441	4,542	12,667	10,861	30,288

SCENARIO E

90% high density
10% low density

This scenario, with the highest threshold of high density development, naturally had the highest number of additional future dwelling units. It would also most likely detract from the rural character of the county, especially if implemented in the largest buffer area of the analysis.

TABLE 17: Scenario E

Scenario E							
		Buffer Distance					
		.5 mi		1 mi		2.5 mi	
High Density	90%	5,396.60		9,186.27		21,965.46	
Low Density	10%	599.62		1,020.70		2,440.61	
Total Undeveloped Acres		5,996.22		10,206.97		24,406.07	
		Additional Dwelling Units					
		.5 mi		1 mi		2.5 mi	
		Min	Max	Min	Max	Min	Max
High Density	90%	21,586	43,173	36,745	73,490	87,862	175,724
Low Density	10%	30	294	51	500	122	1,196
Additional DUs		21,616	43,467	36,796	73,990	87,984	176,920

DENSITY MODEL CONCLUSIONS

Considering the .5 mile buffer will provide sufficient dwelling units to accommodate projected growth in all but one scenario, the following represents reflections on the .5 mile buffer only. Within each Special Area, projected minimum and maximum dwelling units for each scenario were calculated and are displayed in Table 18. For each special area, it was important to note which density scenario would be most appropriate for future development. These recommendations can be found in the following section.

SPECIAL AREA CONCLUSIONS

Table 18 shows the number of total acres within each area, as well as the number of undeveloped acres within each area. It also includes the total percentage of undeveloped land within each area. This helps contextualize which area can withstand which type of development going forward. The various density scenarios would impact each Special Area differently, and therefore each Special Area is recommended to take a different density approach to future development. This is discussed further in the Recommendations Section.

TABLE 18: Projected Dwelling Units in Special Areas (.5 mile buffer)

	711 Village	Courthouse Village	Route 60 Corridor East
Total Acres (in .5 mile buffer)	3,048.07	7,665.57	11,604.31
Undeveloped Acres (in .5 mile buffer)	607.37	2,181.74	3,207.11
Percent Undeveloped	19.9%	28.5%	27.6%
Min DUs (.05 du/acre)	30	109	160
Max DUs (8 du/acre)	4,859	17,454	25,657

PART III

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SECTION V
RECOMMENDATIONS

This section lays out recommendations using data from the above research findings and projections, the recent countywide citizen survey, and preferences noted in the county's previous comprehensive plan.

According to the 2010 comprehensive plan, the county considers the Route 60 Corridor East Special Area to be best fitted for both business and residential development. The plan stresses a main street approach to commercial development, and should be taken into consideration in both a visual context and in terms of future land use. Because this Special Area has ready access to sewer and water services, suburban and lower density residential development would be appropriate in the outskirts of this area. Commerce centers and mixed uses would be located closer to the Route 60 corridor, if not located directly on Route 60. This area would allow for higher density along the corridor, and could specifically accommodate multifamily units and slightly higher vertical development.With the highest number of undeveloped acres, the county has the opportunity to enable a variety of different densities in this area. It is suggested that the county identify target areas within the Route 60 Corridor East area to apply each one of these development scenarios in order to provide residents with a variety of residential options to choose from. The comprehensive plan notes the need for infrastructure improvements as density in this area increases (84).

The 711 Village is recommended as the next place for residential development to occur after the Route 60 Corridor East Special Area. Because the VA-711/VA-288 node exists within this area, the potential for village center development is high. It is important to note that this area has the least amount of undeveloped acres and the highest percentage of developed land out of each of the three Special Areas. It is therefore suggested that higher density development not be concentrated in this area until after the Route 60 Corridor East Special Area has built up. It is also important to note that in the Special Area Plan for the 711 Village in the 2010 comprehensive plan, there was a large portion of the area that was marked as natural conservation. Because of this, the amount of land that could potentially be developed, and thus the number of projected minimum and maximum dwelling units, could be much less than Table 18 indicates.For the 711 Village, it is suggested that either Scenario C or Scenario E, the higher-density scenarios, would help concentrate residential development and enable the conservation land located in the northern section and through the center of the area to remain

intact. It would also fall in line with the more village-centered vision the county has for the area's future development in its comprehensive plan (88).

The Courthouse Village Special Area would be the best place for commercial development, considering its proximity to the government buildings and offices in the county. Because the 2010 comprehensive plan discusses the possibility for new village centers and commerce centers at various nodes along Route 60 in this area. Because of this, this plan will recommend residential development in this area last. Because connectivity and walkability is envisioned for this area in the 2010 comprehensive plan, development should occur tangentially along the Route 60 corridor, focusing primarily on the northern side (86). If development occurs from east to west, for example, infrastructure such as roadway improvements and sewer and water line additions can be added slowly and in line with the county's phasing schedule.It is suggested that the county develop the northern section of the area from east to west as infrastructure and sewer/water lines are phased in per the county's comprehensive plan schedule. Specifically, a lower-density scenario like Scenario A, where only 25% of development is in the high density range of 4 to 8 dwelling units per acre, would provide the area with enough higher density residential development to satisfy the Special Area's vision of cultural village-center walkability while simultaneously guarding against overdevelopment of the historic areas.

VISION

Protecting the rural character of Powhatan through growth management policies and tools will help the county maintain its appeal to current residents. Being a more rural county, future land consumption and residential development will need to be thoughtfully guided in order to maintain the rurality that creates the unique character that residents of the county find special. The need to accommodate future growth must be accompanied by a methodical approach to establish optimal locations of that growth in order to maintain rural character and preserve pre-identified natural conservation, rural preservation and rural residential land.

GOALS, OBJECTIVES AND STRATEGIES

When considering goals and objectives to include in this plan, the most recent countywide survey by The NCS™ (The National Citizen Survey™) served as the primary source of resident opinions.

GOAL 1:
Preserve Rural Character

The initial process of determining what this plan would revolve around focused heavily on the preservation of the county's rural charm. It therefore made sense for the primary goal of this plan to center on rural preservation.

GOAL 2:
Protect the Natural Environment

This goal evolved from the first goal. In order for the county to preserve rural character,

GOAL 3:
Meet Future Housing Needs

GOAL 1

Preserve Rural Character

OBJECTIVE 1.1

Use land use and growth management tools to guide higher density growth tp Special Areas and near existing development and roadways.

STRATEGY 1.1.1

Use TDR policies to guide growth into special areas. The development rights for land in natural conservation areas can be transferred to the Route 60 Corridor East Special Area to increase maximum density in future village centers. Development rights for land in rural preservation areas can also be transferred to properties within the Route 60 Corridor East Special Area.

STRATEGY 1.1.2

Use economic development incentives (state income tax credits, enterprise or development zones, property tax abatements, parking waivers, variances and Special Use Permits, impact fees, etc.) within Special Areas to encourage higher density development along corridors and lower density development in Special Area outskirts. Avoid development in the existing rural landscape through zoning by maintaining current rural preservation land use policies.

STRATEGY 1.1.3

Invest public funds in priority development areas/preferred growth areas (Special Areas). Create separate funds for each Special Area (Special Area Funds) so that priority development areas and priority public/public-private projects can take from the Special Area Fund. Obtain grants and other government monies to help build the funds.

STRATEGY 1.1.4

Create annual/biannual phases of future subdivision development by allowing a limited number of subdivisions or acres to be subdivided per year (this can be achieved by establishing a maximum quota). Focus on Route 60 Corridor East Special Area, then 711 Village Special Area. Refrain from developing residential parcels within Courthouse Village until land has been built up in the other two Special Areas.

OBJECTIVE 1.2

Limit the number of large-lot (10+ acres per lot) subdivisions.

STRATEGY 1.2.1

Implement minimum density requirements in predetermined higher-density growth areas (especially in lots along the Route 60 corridor). Other higher-traffic corridors (VA-711, VA-522, VA-288, VA-13) should be considered for higher density following development of the Rt. 60 corridor.

STRATEGY 1.2.2

Reduce minimum lot size requirements in single-family residential classes (R-2, R-C; currently at 1 du/2 acres) to allow for higher density in these classes (1 du/ 1 acre). If not possible to do this throughout the entire county, create zones within Route Corridor 60 East Special Area.

OBJECTIVE 1.3

Concentrate on infill development and develop land that exists on or near existing public water and sewer connections first.

STRATEGY 1.3.1

Create a database and map of dilapidated/underused structures and track the cost of rehabilitating the structures or redeveloping the lots. Use ArcGIS or other mapping programs to track the structures.

STRATEGY 1.3.2

Obtain grants for rehabilitation and/or utilize historic preservation tax credits on rehabilitative structures after database of dilapidated and underused structures has been completed. Use rehabilitation tax credits through the Virginia Department of Historic Resources or Historic Tax Credits from the National Park Service.

OBJECTIVE 1.4

Prevent future over-congestion of roads.

STRATEGY 1.4.1

Study feasibility of public transit options to connect Special Areas. A traffic study could track types of potential transit options (buses, vans, etc.) and the demographic(s) of residents who would benefit (i.e. the aging population; lower-income residents).

STRATEGY 1.4.2

Implement strict road-widening regulations and population minimums to prevent induced demand. Evaluate and reevaluate roadway traffic regularly to track and manage congestion rates.

GOAL 2

Protect the Natural Environment

OBJECTIVE 2.1

Discourage extension of public water and sewer lines except in Special Area Districts.

STRATEGY 2.1.1

Invest in existing roadway infrastructure and maintenance of existing sewer and water systems. Prohibit public funds being used to expand sewer and water systems through an ordinance; require developers building multi-lot subdivisions to provide infrastructure improvement; implement gas taxes and user fees in developments where infrastructure improvements are needed; acquire funds from the Virginia Transportation Infrastructure Bank to improve Rt. 60 and VA-711 as growth occurs in the 711 Village, Courthouse Village, and Route 60 Corridor East Special Areas.

OBJECTIVE 2.2

Protect the farming economy.

STRATEGY 2.2.1

Use agriculture protection zoning to ensure farms are preserved and not divided for residential subdivisions. Retain large-lot requirements in agricultural zones (A-10 and A-20). Maintain the A-C zone as it currently is written to ensure some land serves solely agricultural, and not residential, functions. Use federal Rural Economic Development Loan and Grant programs to guide agricultural development projects

STRATEGY 2.2.2

Support productive agriculture by developing pop-up markets for local produce. Use existing companies and farms as prototypes for development (use Shalom Farms as an example).

STRATEGY 2.2.3

Maintain soil and water quality by preventing soil erosion and protecting wetlands through TDR policies along the James River and in other sensitive areas. Require residential units in agricultural zones be located on the least productive soils through an ordinance. Grants for various conservation uses are outlined in the implementation table in Section 6.

OBJECTIVE 2.3

Increase recycling opportunities within the county.

STRATEGY 2.3.1

Add an additional recycling/convenience center.

STRATEGY 2.3.2

Have recycling events at different locations (at schools, offices, etc.) throughout the year to provide more opportunities for resident participation, possibly sponsored by partner organizations.

OBJECTIVE 2.4

Promote resource protection zoning.

STRATEGY 2.4.1

Use conservation easements to create conservation areas to protect land used for agriculture, silviculture, along the James River, and along tributaries leading to the James (such as Sallee Creek).

STRATEGY 2.4.2

Promote awareness of the Powhatan Wildlife Management Area as a local natural resource through public campaigns. The Powhatan WMA is one of 41 pieces of land in Virginia to be designated as such, and is maintained by the Virginia Department of Game and Inland Fisheries (DGIF), hence is state land. Because the maintenance funds are appropriated to states per the Pittman–Robertson Federal Aid in Wildlife Restoration Act, a “rainy day” maintenance fund should be established to ensure funds be insufficient to accommodate proper maintenance in the event of budget cuts or depletions.

GOAL 3

Meet Future Housing Needs

OBJECTIVE 3.1

Provide affordable housing options.

STRATEGY 3.1.1

Increase maximum density in various residential zones (VC-PD; CHSC) within the 711 Village and the Route 60 Corridor East special areas to allow for increased development of multifamily units.

STRATEGY 3.1.2

Use housing vouchers and tax credits to ensure rental assistance (Low Income Housing Tax Credit [LIHTC]). Rental assistance can be obtained through HUD or nonprofit organizations, and can be handled by the Community Action Agency.

STRATEGY 3.1.3

Help the community establish a Community Development Entity (CDE) to provide lower income residents with loan and investment guidance and other services. CDEs are established through the U.S. Department of Treasury, specifically the Community Development Financial Institutions Fund. An application can be filled out by residents with the help of the Community Action Agency.

OBJECTIVE 3.2

Ensure enough senior housing will be available as the population ages.

STRATEGY 3.2.1

Build a variety of senior care facilities based on the number of residents who plan to stay in the community as they age. Use surveys and other respondent methods to gather this data.

STRATEGY 3.2.2

Adopt or amend an Accessory Dwelling Unit (ADU) ordinance to allow for in-law suites and other dwelling scenarios for the aging population.

OBJECTIVE 3.3

Provide enough dwelling units for projected future population growth.

STRATEGY 3.3.1

Increase number of Planned Development areas within Special Areas that allow for higher density development. Concentrate the highest number of planned developments within the Rt. 60 Corridor East area.

STRATEGY 3.3.2

Allow for special exemptions for duplexes, triplexes and quadplexes in certain residential zones (CR; R-C). Amend the zoning ordinance accordingly. Concentrate these exemptions within Special Areas, specifically the Rt. 60 Corridor East area.

SECTION VI IMPLEMENTATION

The following section focuses on the proposed implementation strategies and optimal implementation schedule for Powhatan's future growth management practices. Using other jurisdictional growth management policies as guidelines, this section will walk through the proposed best practices Powhatan can implement going forward in their effort to guide future growth. This section's primary purpose is to lay out policy initiatives Powhatan can pursue in an effort to achieve a more robust growth management plan. Many of the tools associated with growth management can be used in conjunction with each other to achieve the vision of the county that both residents and county officials want. Within Powhatan's 2010 comprehensive plan, there was a list of implementation tools included as a guide to complete plan recommendations. These were noted during the recommendation development process of this paper.

TABLE 19: Implementation Table

Goal 1 - Preserve Rural Character					
Strategies/Actions	Priority Level (1-3)*	Action Timeframe			Possible Funding/ Partners
		Short-Term (<=1 year)	Mid-Term (1-5 years)	Long-Term (5+ years)	
Objective 1.1 Use land use and growth management tools to guide higher density growth tp Special Areas and near existing development and roadways.					
Strategy 1.1.1 Use Transfer of Development Rights (TDR) policies to guide growth into special areas. The development rights for land in natural conservation areas can be transferred to the Route 60 Corridor East Special Area to increase maximum density in future village centers. Development rights for land in rural preservation areas can also be transferred to properties within the Route 60 Corridor East Special Area.	2		X		Establish county TDR bank

*1 = low priority; 2 = moderate priority; 3 = high priority

Strategies/Actions	Priority Level (1-3)*	Action Timeframe			Possible Funding/ Partners
		Short-Term (<=1 year)	Mid-Term (1-5 years)	Long-Term (5+ years)	
Strategy 1.1.2 Use economic development incentives (state income tax credits, enterprise or development zones, property tax abatements, parking waivers, variances and Special Use Permits, impact fees, etc.) within Special Areas to encourage higher density development along corridors and lower density development in Special Area outskirts. Avoid development in the existing rural landscape through zoning by maintaining current rural preservation land use policies.	3	X	X	X	- State income tax credits - Impact Fees - Variances and Special Use Permits - Enterprise or development zones - Parking waivers - Property tax abatements
Strategy 1.1.3 Invest public funds in priority development areas/preferred growth areas (Special Areas). Create separate funds for each Special Area (Special Area Funds) so that priority development areas and priority public/ public-private projects can take from the Special Area Fund. Obtain grants and other government monies to help build the funds.	3	X	X	X	Powhatan Community Development Department
Strategy 1.1.4 Create annual/biannual phases of future subdivision development by allowing a limited number of subdivisions or acres to be subdivided per year (this can be achieved by establishing a maximum quota). Focus on Route 60 Corridor East Special Area, then 711 Village Special Area. Refrain from developing residential parcels within Courthouse Village until land has been built up in the other two Special Areas.	3	X	X		- Powhatan Community Development Department - Powhatan Board of Supervisors (zoning ordinance amendment)

*1 = low priority; 2 = moderate priority; 3 = high priority

Strategies/Actions	Priority Level (1-3)*	Action Timeframe			Possible Funding/ Partners
		Short-Term (<=1 year)	Mid-Term (1-5 years)	Long-Term (5+ years)	
Objective 1.2 Limit the number of large-lot (10+ acres per lot) subdivisions.					
Strategy 1.2.1 Implement minimum density requirements in predetermined higher-density growth areas (especially in lots along the Route 60 corridor). Other higher-traffic corridors (VA-711, VA-522, VA-288, VA-13) should be considered for higher density following development of the Rt. 60 corridor.	2		X	X	Zoning Ordinance Amendment
Strategy 1.2.2 Reduce minimum lot size requirements in single-family residential classes (R-2, R-C; currently at 1 du/2 acres) to allow for higher density in these classes (1 du/ 1 acre). If not possible to do this throughout the entire county, create zones within Route Corridor 60 East Special Area.	3	X			Powhatan Community Development Department
Objective 1.3 Concentrate on infill development and develop land that exists on or near existing public water and sewer connections first.					
Strategy 1.3.1 Create a database and map of dilapidated/underused structures and track the cost of rehabilitating the structures or redeveloping the lots. Use ArcGIS or other mapping programs to track the structures.	2	X			Powhatan GIS team
Strategy 1.3.2 Obtain grants for rehabilitation and/or utilize historic preservation tax credits on rehabilitative structures after database of dilapidated and underused structures has been completed. Use rehabilitation tax credits through the Virginia Department of Historic Resources or Historic Tax Credits from the National Park Service.	1		X	X	- Rehabilitation tax credits (Virginia DHR) - Historic Tax Credits (HTC) program (NPS)

*1 = low priority; 2 = moderate priority; 3 = high priority

Strategies/Actions	Priority Level (1-3)*	Action Timeframe			Possible Funding/ Partners
		Short-Term (<=1 year)	Mid-Term (1-5 years)	Long-Term (5+ years)	
Objective 1.4 Prevent future over-congestion of roads.					
Strategy 1.4.1 Study feasibility of public transit options to connect Special Areas. A traffic study could track types of potential transit options (buses, vans, etc.) and the demographic(s) of residents who would benefit (i.e. the aging population; lower-income residents).	1		X	X	- GRTC - Richmond Regional Planning District Commission (RRPDC)
Strategy 1.4.2 Implement strict road-widening regulations and population minimums to prevent induced demand. Evaluate and reevaluate roadway traffic regularly to track and manage congestion rates.	2	X	X	X	- Annual Average Daily Traffic (AADT) - Use Texas Transportation Institute's (TTI) congestion measuring methods - Powhatan Community Development Department

*1 = low priority; 2 = moderate priority; 3 = high priority

Goal 2 - Protect the Natural Environment					
Strategies/Actions	Priority Level (1-3)*	Action Timeframe			Possible Funding/ Partners
		Short-Term (<=1 year)	Mid-Term (1-5 years)	Long-Term (5+ years)	
Objective 2.1 Discourage extension of public water and sewer lines except in Special Area Districts.					
Strategy 2.1.1 Invest in existing roadway infrastructure and maintenance of existing sewer and water systems. Prohibit public funds being used to expand sewer and water systems through an ordinance; require developers building multi-lot subdivisions to provide infrastructure improvement; implement gas taxes and user fees in developments where infrastructure improvements are needed; acquire funds from the Virginia Transportation Infrastructure Bank to improve Rt. 60 and VA-711 as growth occurs in the 711 Village, Courthouse Village, and Route 60 Corridor East Special Areas.	1	X	X	X	- Public-Private Partnerships (P3s) - Virginia Transportation Infrastructure Bank - Bonds (eg Private Activity Bonds) - Gas taxes/user fees - Powhatan Board of Supervisors (ordinance)
Objective 2.2 Protect the farming economy.					
Strategy 2.2.1 Use agriculture protection zoning to ensure farms are preserved and not divided for residential subdivisions. Retain large-lot requirements in agricultural zones (A-10 and A-20). Maintain the A-C zone as it currently is written to ensure some land serves solely agricultural, and not residential, functions. Use federal Rural Economic Development Loan and Grant programs to guide agricultural development projects	3		X	X	Powhatan Community Development Department
Strategy 2.2.2 Support productive agriculture by developing pop-up markets for local produce. Use existing companies and farms as prototypes for development (use Shalom Farms as an example).	2	X	X	X	- Local farms - RVAg, Inc. - Model after Shalom Farms

*1 = low priority; 2 = moderate priority; 3 = high priority

Strategies/Actions	Priority Level (1-3)*	Action Timeframe			Possible Funding/ Partners
		Short-Term (<=1 year)	Mid-Term (1-5 years)	Long-Term (5+ years)	
Strategy 2.2.3 Maintain soil and water quality by preventing soil erosion and protecting wetlands through TDR policies along the James River and in other sensitive areas. Require residential units in agricultural zones be located on the least productive soils through an ordinance. Grants for various conservation uses are outlined in the implementation table in Section 6. Use National Resources Conservation Service (NRCS) programs such as Agricultural Management Assistance (AMA), Conservation Stewardship Program (CSP), Environmental Quality Incentives Program (EQIP), and Healthy Forest Reserve Program (HFRP). Use other rural development programs.	3	X	X	X	- National Resources Conservation Service - Virginia's Department of Conservation and Recreation's Agricultural BMP Cost-Share Program (VACS) for farmers. - USDA's Rural Repair and Rehabilitation Grants
Objective 2.3 Increase recycling opportunities within the county.					
Strategy 2.3.1 Add an additional recycling/convenience center.	1			X	- EPA grants - Virginia DEQ litter prevention and recycling grants
Strategy 2.3.2 Have recycling events at different locations (at schools, offices, etc.) throughout the year to provide more opportunities for resident participation, possibly sponsored by partner organizations.	2	X	X	X	- EPA grants - Virginia DEQ litter prevention and recycling grants - Keep Virginia Beautiful - Virginia Recycling Association

Strategies/Actions	Priority Level (1-3)*	Action Timeframe			Possible Funding/ Partners
		Short-Term (<=1 year)	Mid-Term (1-5 years)	Long-Term (5+ years)	
Objective 2.4 Promote resource protection zoning.					
Strategy 2.4.1 Use conservation easements to create conservation areas to protect land used for agriculture, silviculture, along the James River, and along tributaries leading to the James (such as Sallee Creek).	2		X	X	- Virginia Department of Conservation and Recreation - Virginia Safe Wildlife Corridors Collaborative
Strategy 2.4.2 Promote awareness of the Powhatan Wildlife Management Area as a local natural resource through public campaigns. The Powhatan WMA is one of 41 pieces of land in Virginia to be designated as such, and is maintained by the Virginia Department of Game and Inland Fisheries (DGIF), hence is state land. Because the maintenance funds are appropriated to states per the Pittman–Robertson Federal Aid in Wildlife Restoration Act, a "rainy day" maintenance fund should be established to ensure funds be insufficient to accommodate proper maintenance in the event of budget cuts or depletions.	2		X	X	- Virginia Department of Conservation and Recreation - Wildlife Corridors Conservation Act - Virginia Safe Wildlife Corridors Collaborative - Powhatan Board of Supervisors

*1 = low priority; 2 = moderate priority; 3 = high priority

Goal 3 - Meet Future Housing Needs					
Strategies/Actions	Priority Level (1-3)*	Action Timeframe			Possible Funding/ Partners
		Short-Term (<=1 year)	Mid-Term (1-5 years)	Long-Term (5+ years)	
Objective 3.1 Provide affordable housing options.					
Strategy 3.1.1 Increase maximum density in various residential zones (VC-PD; CHSC) within the 711 Village and the Route 60 Corridor East special areas to allow for increased development of multifamily units.	3	X			Powhatan Community Development Department
Strategy 3.1.2 Use housing vouchers and tax credits to ensure rental assistance (Low Income Housing Tax Credit [LIHTC]). Rental assistance can be obtained through HUD or nonprofit organizations, and can be handled by the Community Action Agency.	3	X	X	X	- Low Income Housing Tax Credit (LIHTC) - Housing vouchers - National Housing Trust Fund (HTF) - Powhatan Community Action Agency
Strategy 3.1.3 Help the community establish a Community Development Entity (CDE) to provide lower income residents with loan and investment guidance and other services. CDEs are established through the U.S. Department of Treasury, specifically the Community Development Financial Institutions Fund. An application can be filled out by residents with the help of the Community Action Agency.	2		X	X	- U.S. Department of the Treasury - Powhatan Community Action Agency

*1 = low priority; 2 = moderate priority; 3 = high priority

Strategies/Actions	Priority Level (1-3)*	Action Timeframe			Possible Funding/ Partners
		Short-Term (<=1 year)	Mid-Term (1-5 years)	Long-Term (5+ years)	
Objective 3.2 Ensure enough senior housing will be available as the population ages.					
Strategy 3.2.1 Build a variety of senior care facilities based on the number of residents who plan to stay in the community as they age. Use surveys and other respondent methods to gather this data.	2		X	X	- Powhatan Community Development Department - Powhatan Economic Development Department
Strategy 3.2.2 Adopt or amend an Accessory Dwelling Unit (ADU) ordinance to allow for in-law suites and other dwelling scenarios for the aging population.	2	X			- Powhatan Community Development Department
Objective 3.3 Provide enough dwelling units for projected future population growth.					
Strategy 3.3.1 Increase number of Planned Development areas within Special Areas that allow for higher density development. Concentrate the highest number of planned developments within the Rt. 60 Corridor East area.	1		X	X	- Powhatan Community Development Department
Strategy 3.3.2 Allow for special exemptions for duplexes, triplexes and quadplexes in certain residential zones (CR; R-C). Amend the zoning ordinance accordingly. Concentrate these exemptions within Special Areas, specifically the Rt. 60 Corridor East area.	3	X	X		- Powhatan Community Development Department - Powhatan Board of Supervisors

*1 = low priority; 2 = moderate priority; 3 = high priority

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